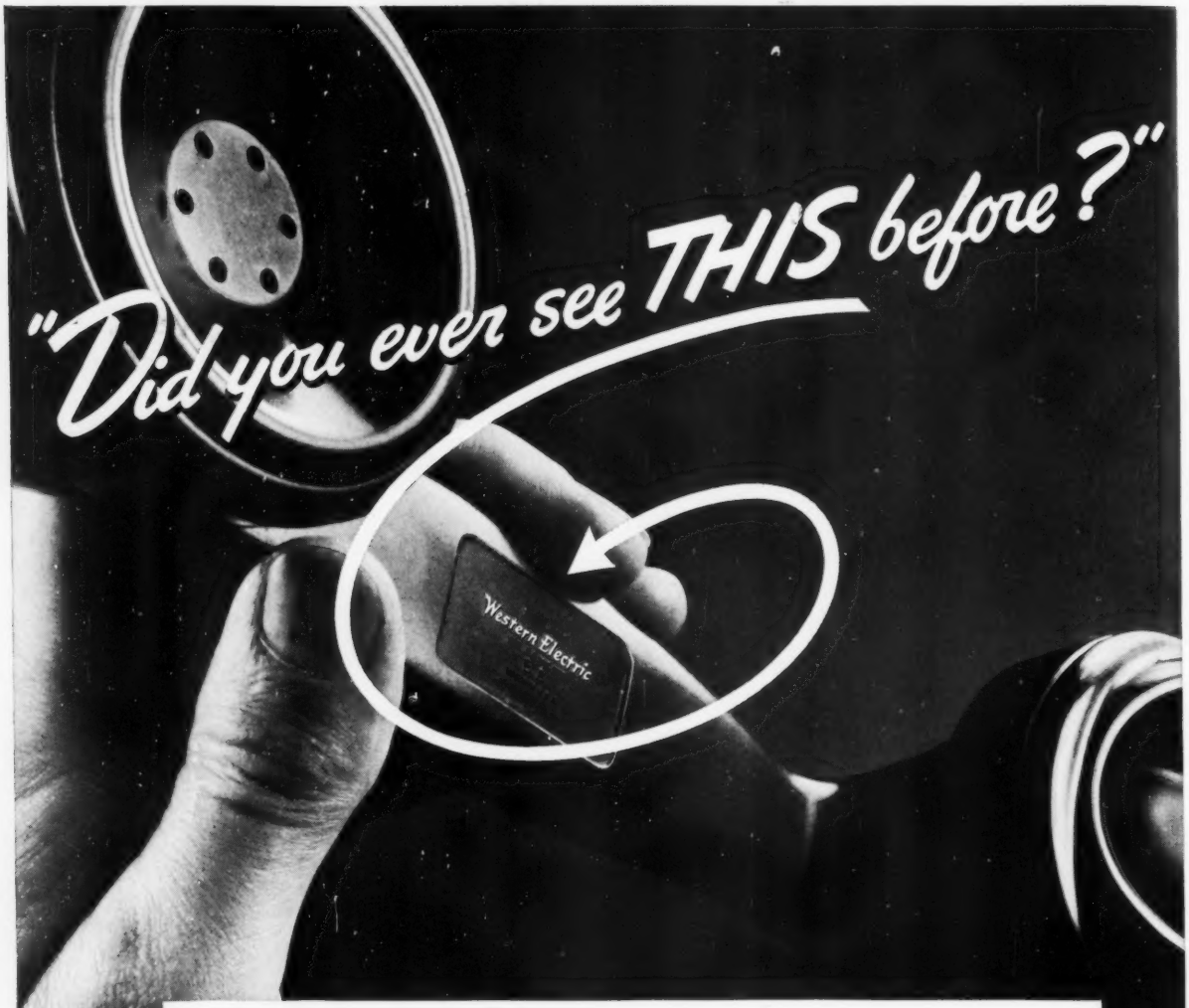
AMERICAN FORESTS
MARCH 1937

"TREES AGAINST MARCH SKIES"



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EDITOR
Ovid Butler

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Lilian Cromelin
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NEXT MONTH

On March 31 the Civilian Conservation Corps will celebrate its fourth birthday. Exactly what has it accomplished in the conservation of human and natural resources? What has it contributed to business, to industry? In the April issue the record of the CCC will be read by Fred J. Murray in an able, enlightening presentation.

The deadly Dutch elm disease is threatening every American elm. Thousands of trees have been destroyed—others must follow. But America alone is not fighting for the life of its elms. Other countries have been and are now at grips with the destroyer. What is being done abroad will be told by R. Kent Beattie, perhaps the outstanding American authority on the subject.

The pictorial feature of the month will portray the the dramatic story of modern logging. James Girard, old-time logger, will tell the story. There will also be articles by Earl O'Roke and others.

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Member A. B. C.

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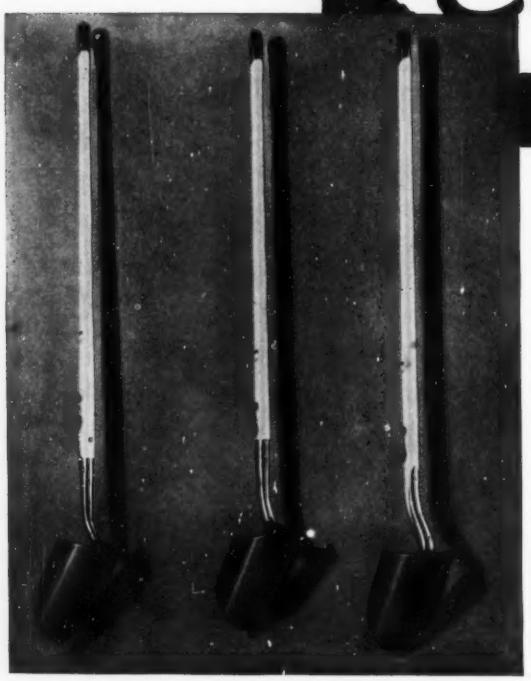

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We have prepared an illustrated booklet in color describing the INDIAN FIRE PUMP and reproducing unsolicited testimonials from various sources. It should be of interest to everyone concerned with Fire Prevention and we will be pleased to send you a copy upon request.

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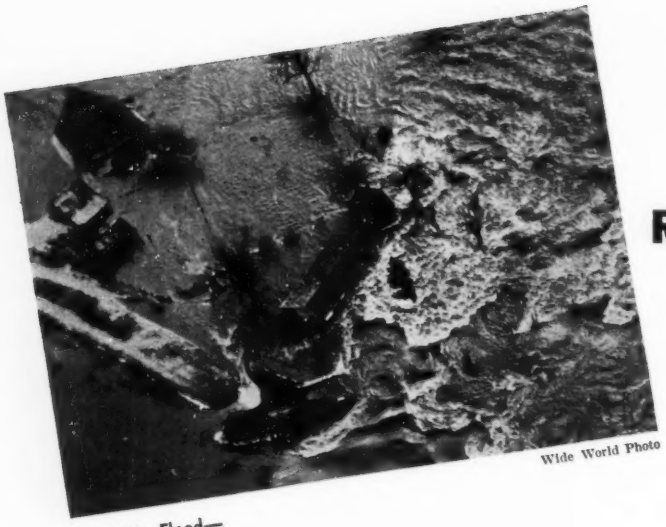

Wide World Photo

The Ohio Flood—

RIVERS IN FLOOD

■ One of the clear lessons of the Ohio-Mississippi flood of 1937 is that more dependable control of our major rivers is the greatest conservation task before the American people. Man cannot stop floods but by the intelligent application and use of nature's laws, supplemented by engineering works, he may prevent the super-floods that lay waste to great sections of the country. Experience shows that dams and levees alone cannot be depended upon and that if stream control is to be successfully solved, every biological and engineering remedy known to be feasible as a check to run-off and soil erosion must be systematically called into play.

This approach to the streamflow problem has long been advocated by The American Forestry Association. The principles upon which it stands are:

1. That plans for river control and development should consider each river or major tributary as a whole, and that each public project of construction should constitute an integral part of a complete plan for the river system concerned.
2. That public works for river control and development should be closely coordinated with programs for reforestation, soil conservation and erosion control, including intelligent agriculture, conservation of forests, range and pasture, and other features of constructive land use.
3. That the interstate character of most of our important river systems, the magnitude of the river control task and the social and economic benefits of control works, justify and require participation of the Federal Government in the planning and execution of these activities.
4. That it should be the general principle except in cases of improvements for navigation, that the localities chiefly benefitted by public works for river control should bear an appropriate share of the cost, with a liberal contribution by the Federal Government.

Note—In this space is presented each month the Association's policy with respect to timely phases of conservation.

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The Editor's Log

WILL CONGRESS make the CCC permanent? Ohio's flood has answered yes, by revealing to the American people the magnitude of the land and water conservation problem and the years of constructive work upon which the unemployed youths of this country may be employed.

* * * * *

The idea of changing the name of the Department of the Interior to the Department of Conservation is commonly credited to Secretary Ickes. The Washington grapevine, however, has it otherwise. This is the story that has recently come to the surface.

Two years ago, Secretary Ickes decided that the Interior Department had outlived its traditional name. Being a man with a mission and full of action, he forthwith instructed his legal division to draft a bill to change Interior's name to one more descriptive of its present-day activities. The legal staff labored and brought forth the name, "Department of Natural Resources and Works."

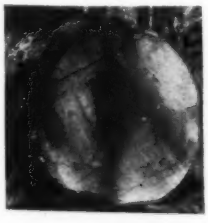
Slipping a copy of the proposed bill in his pocket, the Secretary called at the White House to obtain presidential approval of his quixotic mission. The President read the nine line document, smiled, and promptly chopped off "and Works" on the grounds that it wouldn't go so well with the public. Then, after some thoughtful reflection, he drew a line through the words, "Natural Resources," and wrote above them the single word, "Conservation."

Secretary Ickes returned to his office happy and buoyant. A few days later Congressman Dempsey introduced in Congress H. R. 11642,—"A bill to change the name of the Department of the Interior, to be known as the Department of Conservation."

This story may or may not be true. If true, it lets two cats out of the bag. One explains the open season (officially) the Secretary has enjoyed in gunning for passage of his bill. The other explains the Brownlow Committee's recommendation that in the new set-up of government, the new Interior Building should be rededicated as "The Department of Conservation."

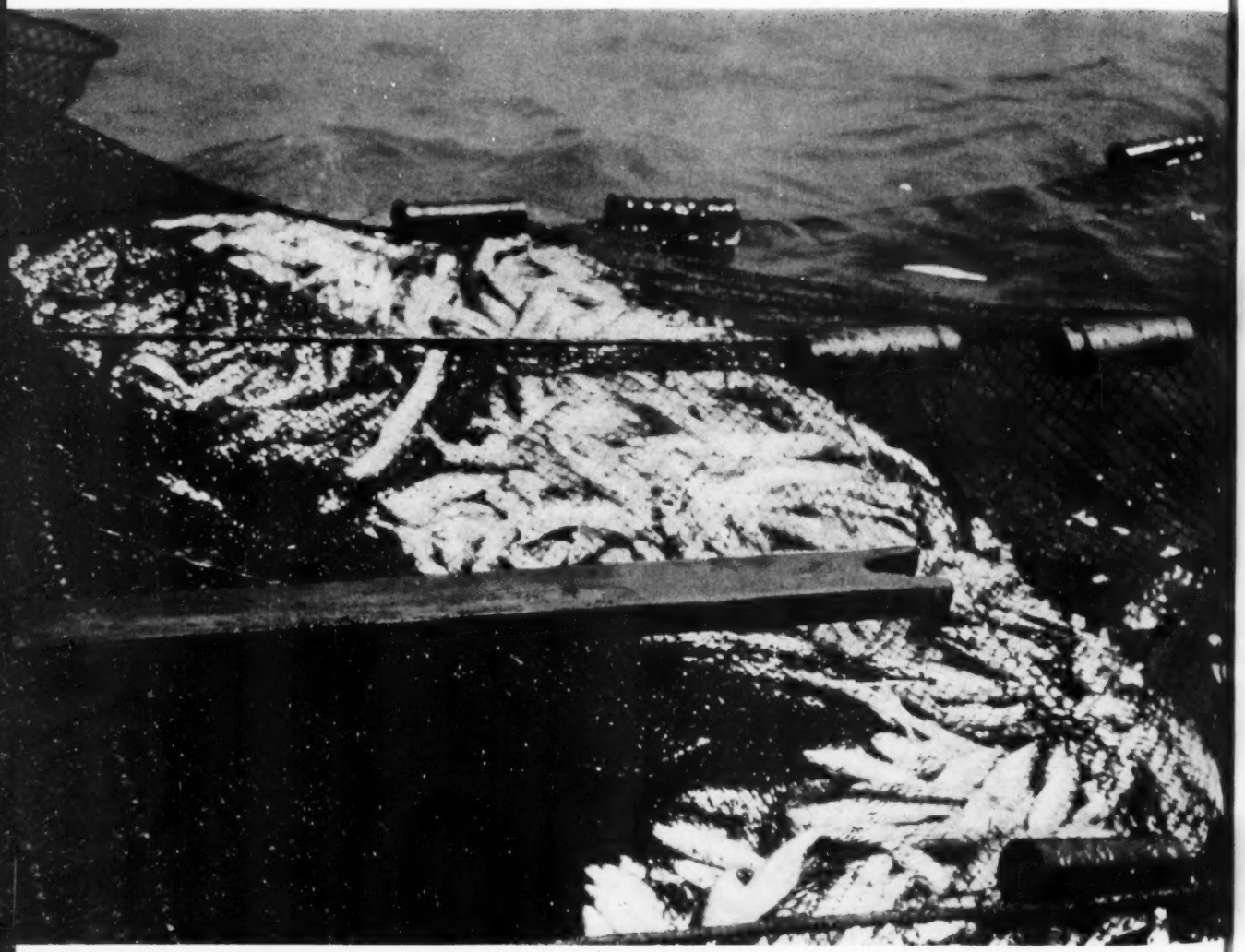
* * * * *

Uncle Sam's versatility in bookkeeping at times challenges the exploits of Johnny Inkslinger, "master figurer" of Paul Bunyan's mythical logging crew. Latest U. S. feat in trapeze accounting is reported from Matanuska, much publicized resettlement colony in Alaska. Recently, one of the Resettlers, awakening to the fact that he was becoming indentured to the Federal Government to the extent of more than $14,000, demanded a showdown. Quick-witted RA accountants were called into action. By simple arithmetic, they figured what it would have cost the government to keep the Resettler and his family *at home on relief* instead of moving him to Alaska. This sum was deducted from his debt to Uncle Sam and happiness was restored to Matanuska Valley.



Ovid Butler

A Ton of Fish in a Single Haul



If the seines used in Great Lakes fisheries were placed end to end they would encircle the globe

JOHN VAN OOSTEN

FORETELLS THE

DOOM OF THE GREAT LAKES FISHERIES

Rolling in the gill net

THE Great Lakes and their connecting waters are the chief commercial sources of our most highly prized fresh-water species of fish. These species are facing extermination. They are in urgent need of action to protect them. Yet little is being done to save them in spite of the strong national trend toward conservation.

The importance of these fisheries to our nation may best be expressed by a few facts. Some 150,000,000 pounds of fresh-water fish are produced commercially in the United States each year. More than 90,000,000 pounds, or about sixty-five per cent, of this total come from the United States waters of the Great Lakes. Or expressed otherwise, these waters produce each year approximately 250,000,000 fish or enough to supply every man, woman, and child in the United States with two fish apiece. This estimate does not include the millions taken by our anglers each year, or the 30,000,000 pounds produced by the Canadian fishermen.

Further, the Great Lakes account for all of our commercial production of such species as the widely advertised whitefish, lake trout, wall-eyed pike, yellow perch, blue pike, sauger, chubs, cisco, lake herring, and suckers. Even Canada with its hundreds of untapped lakes could not satisfy our demand for these species of fish. It is evident, therefore, that if we want these fish for our table we must protect our only source of supply—the fisheries of the Great Lakes. Are we doing it? No one conversant with the history of these fisheries will hesitate to reply most emphatically, "No, we are not!" Let me illustrate with a few random examples the downward trend taken by one fishery after another on the various lakes.

The famous Lake Superior whitefish that finds such a prominent place on the menus of our hotels and restaurants has long ago taken a nose dive from an annual production of 3,500,000 pounds to a level of less than 500,000 pounds. Virtually none of those now served the traveling public have ever been near Lake Superior. In fact, about sixty per cent of the whitefish consumed annually in this country have never seen United States waters but were shipped in from Canada.

The lake sturgeon has become so rare that today a fisherman who is fortunate enough to catch

Courtesy Michigan Department of Conservation

"Main Street" in a Great Lakes fishing village

Right—Loading a seine one mile in length preparatory to setting

an adult fish on the Great Lakes ranks newspaper publicity, and both he and the dead sturgeon are photographed promptly for the rotogravure section of a Sunday edition.

The yellow perch of Lake Michigan is now only half as abundant as formerly, while in Lake Huron it has been reduced by about seventy-five per cent. The bluefin of Lake Superior, the blackfin of Lake Michigan and the bloater of Lake Ontario have been entirely exterminated commercially.

Just recently Lake Erie, the most productive of the lakes, was struck a critical blow when its most valuable fish, the cisco, was completely wiped out commercially. The production of cisco fell from 21,250,000 pounds in 1924 to 111,000 pounds in 1934, a decline of ninety-nine and one-half per cent.

The tragedy of the entire situation is that as soon as one fishery is wiped out, another one is threatened because the nets that had been employed in catching the exterminated species are diverted to the capture of other species. For example, the collapse of the Lake Erie cisco fishery led to sharply increased production of chubs, as a substitute, in all the other lakes. Now the chubs of these lakes are struggling for existence. In Lake Erie itself, the nets formerly used to take ciscoes were fished for yellow perch, with the result that the production of perch increased to the 1934 all-time record of more than eight times the normal. In 1935 and 1936, the yellow perch was so scarce in Lake Erie that fishing for them was done at a financial loss.

The situation on the Great Lakes is more serious than the public realizes. In fact, the history of the Great Lakes fisheries parallels closely the well known history of the forests, the game fish, the game mammals, and the game birds and waterfowl of the same region. The waste and burnt-over lands of the North Central States find their counterparts in the large areas of barren waters in the Great Lakes where once the whitefish, lake trout, and other species of fish grew in great abundance but where now only stragglers are taken. Unless some firm action is taken, and taken soon, the productivity of the lakes that are still supporting a fairly large fishing industry will repeat the history of production on Lake Ontario where the former average annual yield of about 3,000,000 pounds of fish has dwindled for many years to around 500,000 pounds and where at the present time only small fishing rigs can afford to operate due to the extreme scarcity of fish. Under present conditions, the Great Lakes fisheries are doomed to commercial extinction.

The question arises, "What must be done to avert continued devastation of these fisheries"?

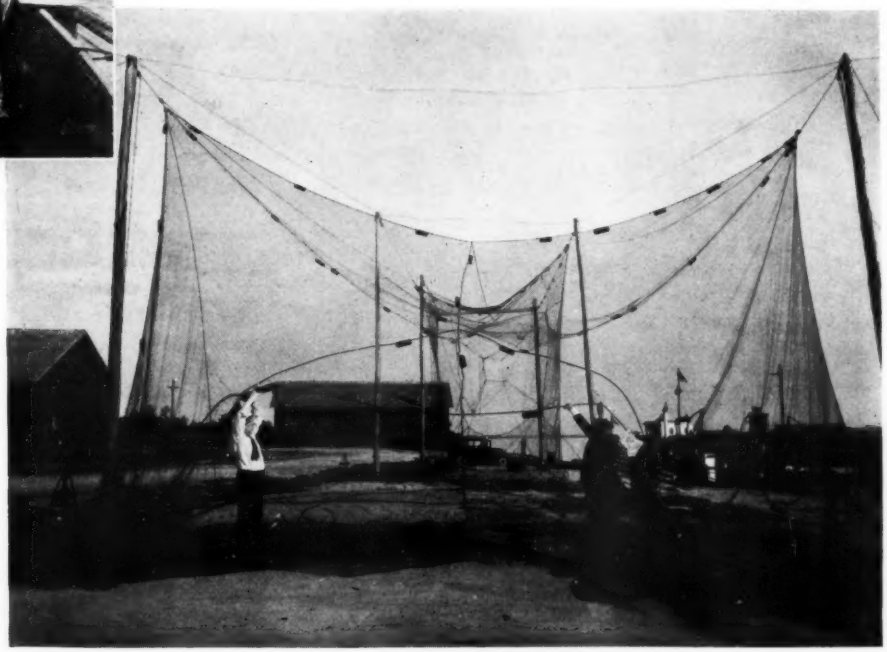
There is only one satisfactory answer. *We must reduce the present fishing intensity.* One does not need a profound course in logic to understand the simple fact that depletion merely means a lack of balance between mortality and replacement or between outgo and income. When a species of fish is undergoing extermination, it is evident that more fish are dying or are taken out of the water than are replaced either naturally or by artificial means.

On the Great Lakes, commercial fishing is the only factor involved in depletion that can be placed at the present time under the immediate control of man. The Great Lakes are too large to be subjected to environmental control or lake improvement. The effectiveness of artificial propagation on the Great Lakes is still a subject for debate. Hence, the income on the Great Lakes cannot as yet be controlled by man while the outgo can be curtailed only by the regulation of fishing operations or gear.

To convey some idea of the intensity of the fishing on the Great Lakes in United States waters I may refer to some very illuminating computations. The production of 90,000,000 pounds of fish required the employment of more than 7,500 fishermen and the use of more than 3,500 vessels and boats. The amount of fishing equipment lifted during a year runs into startling figures. In 1934 about 133,000 miles of gill nets were lifted, or enough to encircle the earth more than five times at the equator. Approximately 11,000,000 hooks were set for lake trout. If the seines used for every haul were built into one net, we would have a seine approximately 26,000 miles long. In addition, about 250,000 lifts were made with entrapping nets, some of which took tons of fish in a single day.

Although it is evident that this fishing intensity must be reduced if the valuable commercial fisheries are to survive, yet it has been virtually impossible for the various conservation departments to make progress toward this objective. It is true, apathetic or political-minded legislatures have hampered the efforts of these departments, but in my estimation the greatest obstacle to progress is the lack of uniform regulations, uniform methods of enforcement, and uniform enforcement on each of the Great Lakes. Contrary to the belief of many people, the Great Lakes fisheries are not under the jurisdiction of the Federal Government but are administered by the eight States fronting the Great Lakes, namely, New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Wisconsin, and Minnesota and by the Province of Ontario. The Federal Government may investigate, advise, and recommend, but the states must enact and enforce their respective fishery laws. This divided control is the greatest single handicap that confronts the administrators of the Great Lakes fisheries today.

A brief review of the situation on Lake Erie will illustrate the complications involved in divided control. In 1927, the (*Continuing on page* 144)



This deep-water net can swallow a whole school of whitefish

Left—Lifting a shallow-water submarine trap net

Courtesy Michigan Department of Conservation

By F. A. SILCOX, Chief,
United States Forest Service

Barren watersheds like this (left) help make floods like this (below) at New Madrid, Indiana

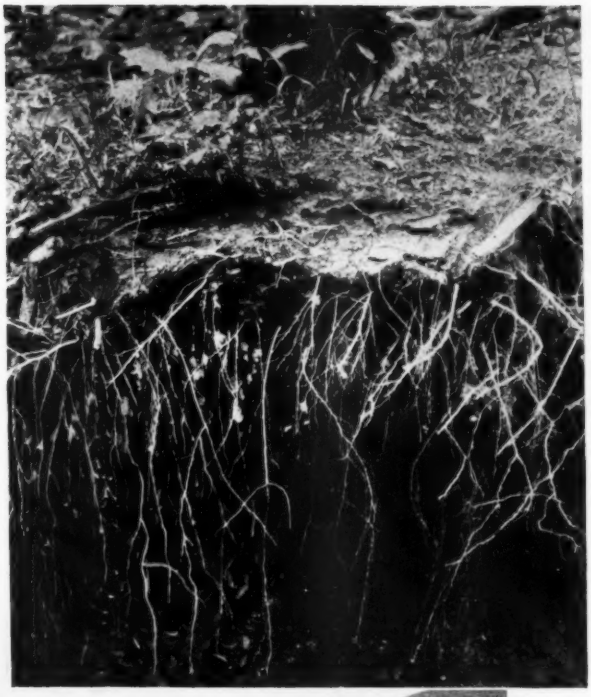
Wide World Photo

THE MISSISSIPPI, largest of our rivers, has had a long and disastrous flood record. De la Vaga records that DeSoto's men, following the death of their leader, encountered in 1542 a forty-day flood which covered everything "but the tops of the tallest trees." This was almost 400 years ago. A War Department report of 1861 lists twenty-four separate floods between 1718—which was 200 odd years ago—and 1859. . Many floods of serious proportions have occurred since, and because our records are better, we know more about them. That of 1927 inundated some 18,000 square miles of country and dispossessed about 750,000 people of their homes. Property losses were appalling.

The Ohio is the largest eastern tributary of the Mississippi. More than 17,600,000 people live within the 127,000,000 acres of the Ohio's drainage, of which about forty per cent is rough land valuable chiefly for its existing and potential forest cover. The balance includes fine farms, industrial cities, busy markets, great natural resources. Yet in every single year between 1873 and 1913 the Ohio at some point along its course has overflowed its banks and flooded large areas of adjoining bottomlands.

The Ohio has also had many floods since 1913, but that of January and February, 1937, is the worst on record. As of February 2 this flood had, according to the National Red Cross, directly affected 243 counties in ten states. Within this area, homes of more than 942,000 people had been flood-

A NEW POLICY FOR FLOOD CONTROL



Multiply the roots of this one tree by the number of trees in this headwater valley and the forest becomes a mighty power in flood control and soil conservation

ed, with some 648,000 forced to flee for their lives. More than 700 concentration camps and 230 Red Cross field stations were in operation; 1,500 Red Cross nurses were on the job; 2,800 civil workers were helping to direct relief operations, and while property damage had not been figured by the Red Cross, independent estimates based on hasty surveys put the figure at somewhere between $500,000,000 and $1,000,000,000.

These things indicate some of the problems which a single flood brings, with the Mississippi—down which the swollen waters are now headed—still to be heard from. What, then, of the future? Records indicate that in numbers at least floods in the Ohio are on the increase, and that higher flood crests may in the future be anticipated from storms equal or greater in magnitude to those of the past. Does this mean we must endure recurrent flood trouble such as that of 1937? Or are there some causes of floods which, man-made, are subject to modification by man?

Taking to heart the old adage to the effect that an ounce of prevention is worth a pound of cure, antitoxins were developed to check the spread of typhoid fever. But physicians did not stop with this. Tracing typhoid to its sources, they applied preventive measures there. Not till then was typhoid fever controlled. In the matter of floods, we are still in the antitoxin stage. We build dams and reservoirs, and so long as they remain virile

we are helped tremendously. We erect revetments and levees, and so long as they are strong enough and high enough, people immediately behind them are safe. These mighty engineering works are necessary parts of the job, but they do not reach the sources of infection. For although levees of the lower Mississippi may hold, the Ohio above is ravaged, and both Mississippi and Ohio are laden with some 300,000,000 tons of soil which this latest flood is estimated to have washed into streams and valleys above Cairo, Illinois.

Because of this and a long list of similar instances, as a nation we believe it is time to turn now from rivers to rivulets, from ramparts to raindrops, from floodcrests to forests and other vegetation; from antitoxins to the sources from which our floods come. We still recognize the value and effectiveness of major engineering works, which must be continued and expanded. But they will no longer be our only line of flood defense; we are definitely turning, now, to conservation; to management of land and vegetative cover; to such common sense measures as regrassing and reforestation of land unfit for cultivation; to forest protection, controlled grazing, and to simple but effective farm management practices such as strip cropping, contour cultivation, terracing, crop rotation, and other readily adaptable measures for holding soil and water. For we know that such conservation measures, applied to the watersheds where floods have their origin, help save the soil for productive use, help eliminate what would otherwise be recurring minor floods, help reduce the volume and velocity of surface run-off that contributes to major ones, and help reduce sedimentation of reservoirs as well as minimize the silting of channels.

It is true that there are some people who do not yet believe in the value of such measures. They, however, are skeptics who must either be convinced against their will or left behind with "the same opinion still." Fortunately there is ample proof that "except for the oceans there is no reservoir for water so vast and effective as the soil." Provided, of course, that soil is sensibly managed and nature aided in conserving both it and its protective covers. And that proof lies right here at home, where all who read may see.

Pickens and San Dimas and Frankish, mountain canyons opening into fertile southern California valleys, are apt illustrations. Fire removed forest cover on 5,000 acres in Pickens Canyon in 1933, but did not visit San Dimas Canyon. Late in December of that year, a heavy storm hit both these canyons alike. A few days later, a flood swept out of Pickens Canyon, destroyed 200 homes and killed thirty-four persons. There was no flood from unburned San Dimas Canyon. In 1935, fire swept nearby Frankish Canyon. Early in 1936, floods swept out of it through the city of Upland. The same storm struck unburned San Dimas Canyon. With forest cover intact there was no flood there; San Dimas waters continued clear.

The Forest Service had rain gauges and other controls in all three of these California canyons. Measurements in other parts of the country afford similar information. Just before the 1936 flood on one of the tributaries of the Susquehanna, nine-tenths of the rain falling on a potato field was lost as run-off, and carried with it more than 1,000 pounds of soil from every acre. But in the same storm a neighboring forested area lost only one-half of one per cent of the percipitation, and no soil. On a Soil Conservation Service project along the Concho River, a tributary of the Colorado in Texas, record rains fell during September of last year. As a result the Colorado River went on a rampage, but conservation work on 8,000 acres of the Concho watershed held every drop of water that fell on the land; all the water which otherwise would have run off was stored, till the flood danger was passed, in soil which was not lost.

In the light of these and similar circumstances on many other watersheds it is interesting—and perhaps significant—to recall that the Mississippi basin has always been lightly forested; has in fact always been conspicuous among the great river basins of the world for its large percentage of non-forest lands. True, much of the Mississippi basin had at one time an empire of grass, which in itself acts as an effective soil binder, but the western range has for years been abused until as a whole it now grows less than half the feed it originally did, and erosion is rampant there. And the Ohio watershed, where floods are increasing in numbers and in the height of their crests, was once ninety-eight per cent forested, but now has only about one-third of its area in forest growth, largely on rough, broken land unfit for agriculture. And much of this is heavily cut over, has been repeatedly burned, and is being used for pasture.

Erosion within the Ohio watershed is widespread. Surveys of the last few years show that approximately sixty-five per cent of the area is moderately eroded, twelve per cent more heavily eroded, while only twenty-three per cent is not eroded. Within this one hundred and twenty-seven million acre domain there have been established National Forest Purchase Units comprising some twelve million acres, although because of lack of funds the Forest Service has acquired or has in process of acquirement to date only 2,944,000 acres. Within the basin as a whole, the Soil Conservation Service now has thirteen erosion control projects, each containing about 25,000 acres, which demonstrate practical methods farmers can use in controlling erosion and run-off on their farms. Recent reports from these projects indicate that cultivation, strip cropping, and farm check-dams effectively help to control erosion and the amount of water run-off.

It was more than 200 years ago that the first levee was built along New Orleans' waterfront. Through two centuries others have been built, higher and higher, and extended farther and farther up the banks of the lower Mississippi and those of the Ohio as well. Yet through two centuries floods have come, undermining or cascading over levees and bringing death and disease to (*Continuing on page* 146)

CONSERVATION AT THE FORKS

Proposed Reorganization of the Federal Government Raises Questions Vital to Agriculture, Forestry and Other Fields of Conservation

By OVID BUTLER

REORGANIZATION of the Federal Government as proposed by the President points quite clearly to contemplated changes in principles of administrative management of natural resources that may deeply affect the future course of forest, water, wildlife and soil conservation. Indeed, the implications of the report are so far-reaching as to raise the question whether their ultimate effect will not be to disorganize the government's broad program of agricultural rehabilitation by destroying that administrative unity essential to the successful carrying out of a complex social undertaking that rests, first and last, upon a balanced use of the soil and its growing resources.

Subjected to logical interpretation, the President's plan appears to bring both agriculture and conservation to the forks of the road for determination by Congress of the administrative principle which shall mark the route. This may be illustrated by contrasting the government's past management of public forest resources with the plan now proposed. A little over thirty years ago when forest conservation in the federal estate was hardly more than a woodlot of seedling trees, Theodore Roosevelt lifted it from the Department of Interior and planted it in the Department of Agriculture. He gave as his reason that the scientific knowledge and trained staff for the care and growing of trees were in the Department of Agriculture.

Franklin D. Roosevelt, it is to be concluded from his announced plan of reorganization, now proposes to move the original planting, since grown to 165,000,000 acres of public forests, back to the Interior Department and make it an integral part of a Department of Conservation charged with the stewardship of our public lands and other public natural resources. His reason as given by his Committee on the Administrative Management of the Government is that "the name 'Conservation' should be among the departmental titles because it represents a major purpose of our government today."

Here are two different principles of federal management of living, renewable resources,—one placing responsibility in the department established to deal with the living resources of the soil; the other, seeking to name-plate conservation as a purpose of government by putting parts of it in a separate compartment. The difference between the two principles constitutes the fundamental issue raised by the President's committee as its recommendations relate to the conservation activities of the Federal Government. It is an issue that should be debated openly, freely and without rancor in an honest effort to reach a sound conclusion because the choice of roads now, as has already been stated, may affect greatly our whole national effort to conserve land and human resources.

Raising the issue in no way denies the need of realigning the administrative machinery of the government. Reorganization is long overdue and nowhere is it more glaringly needed than among the overlapping, uncoordinated bureaus and agencies dealing with conservation. The President's purpose properly has national public approval. The report of his Committee on Administrative Management is a state paper of historic worth in its exposition of democratic government and an inspiration to all citizens to help organize administrative responsibility so that it will best serve democracy's complex needs.

The crux of the committee's recommendation is the establishment of a Department of Conservation—by conversion of the old Interior Department—into which would be grouped those agencies having to do with the administration of "the public lands, parks, territories and reservations." If carried out literally, this would call for the transfer of the National Forests and Wildlife Reservations from the Department of Agriculture to the new department and it would center there the following major bureaus: The National Park Service, parts of the Forest Service and the Biological Survey, the Grazing Service, the Reclama-

tion Service, the Geological Survey, the Indian Service and the General Land Office. Whether the Soil Conservation Service, the Bureau of Fisheries and the Civilian Conservation Corps are included in the committee's suggested alignment is not clear.

A Department of Conservation appeals to the average citizen as a logical and economical form of organization. It has certain advantages, readily apparent on the surface. It would add prestige to conservation as a purpose of government. It would center responsibility in one cabinet officer for safeguarding public natural resources. It would permit more ready coordination of bureau activities and more direct control over interbureau conflicts. It would assure conservation more orderly claim for needed appropriations before Congress.

These advantages, however, are more apparent in wishful thinking than in probable realization, particularly under the form of conservation reorganization charted by the President. And they leave out of consideration two fundamental questions: (1) the broad pattern of conservation in our national government today, and (2) the specialized problems peculiar to correlated management of the many resources with which the government has to deal. If conservation were merely the protection and administration of natural resources in place, its mechanical organization by bureaus and departments could be easily accomplished. But the obligation of the Federal Government goes beyond that to the larger obligation of guaranteeing to the people that management of renewable resources such as trees, forage, animal and fish life shall have the direct benefit and stimulus of the best scientific knowledge of the day to the end that such heritages may be multiplied and may render an ever larger service to this and future generations.

Reorganization, if it is to stand the test of time, cannot overlook the broad pattern of conservation in the government's efforts to rehabilitate the American people and the lands upon which their lives depend. Conservation's ultimate purpose is to conserve natural resources for human use and welfare. This is not a single-cylinder function that can be readily assembled like the parts of an engine. It is rather in the nature of an electric current that flows through every part of a great city. Virtually every activity of the government in aid of agriculture, education, mining, forest industry, flood control and national planning is in its own way charged with a strong current of conservation purpose not subject to separation and assemblage in a department of its own.

This is well illustrated by this Administration's effort to rehabilitate agriculture and thereby restore the security of both rural and urban life in America. In pursuance of this program the Department of Agriculture must call into play the best scientific knowledge and brains available to deal with interwoven problems of soil, water, crops, forage, animal life and even human beings. This is an undertaking that cannot be accomplished by letting its parts out to contractors. It is a long-time task calling for unity of action and the constant flow of scientific knowledge and departmental direction. An attempt to shear off to other departments responsibility for certain conservation parts of this program because they deal with wild animals rather than domestic, or because the land is owned by the public rather than the individual, would seem to be an experiment in vivisection that may prove costly in more ways than one.

Whether it be agriculture, industry, flood control or social welfare, conservation is so much a part of the Federal Government today that the question may well be raised if the plan now before Congress and the people for consideration is not a superficial approach to conservation's place in the scheme of government. At best, the proposal calls for a hybrid Department of Conservation in that it would embrace only those agencies having to do with publicly owned lands and resources "except as otherwise assigned." The quoted words leave the door ajar for continued log-rolling between departments for this bureau or that and thereby make the proposed Department of Conservation a hybrid of even greater uncertainty in the future.

More than this, the proposal presents the anomaly of a Department of Conservation which does not embrace the greatest conservation problem—that of agriculture—with which the government has to deal. And it can never embrace this problem without tearing down one department to build another. Congress by Acts passed through the years and too numerous to mention, has placed upon the Department of Agriculture the task of working out a rural land economy that involves the conservation and balanced use of the soil—both private and public—for crops, forage and forests. Here are resources upon which the American people are dependent for food, clothing and national prosperity. Their proper use and development represents the Federal Government's major and most important undertaking in conservation. To attempt to emphasize this major purpose by placing the conservation label on another department would seem to defeat its own ends at the outset.

The justification for reorganization is economy and more efficient handling of public business. The proposed Department of Conservation is far from reassuring on that score. It would divide the forestry work now under the Department of Agriculture leaving that having to do with 185,000,000 acres of farm woodlands and 270,000,000 acres of commercial forest lands with the department and transferring that having to do with 166,000,000 acres of National Forests to the new Department of Conservation. On the same land ownership basis, it would halve the work of the Biological Survey and possibly that of the Soil Conservation Service (*Continuing on page* 143)

• 1937 •
WILDERNESS EXPEDITIONS

Trail Riders of the Wilderness, Observing Fifth Anniversary, to Explore Primitive Areas of National Forests and Parks. Seven Parties Forming for Greatest Adventure

With the Trail Riders in Wyoming's Wind River Wilderness

THE greatest adventure yet undertaken by the Trail Riders of the Wilderness is being planned for 1937. Seven expeditions will explore the nation's last wilderness strongholds under the direction of The American Forestry Association. More than 800 miles of unfrequented trail in both the West and East will be followed by nearly one hundred and fifty riders. The first party will get under way in June, the last in September.

The vast Sawtooth Mountain region of Idaho, the little known primitive country beyond famous Sun Valley, the West's new winter sports center, will be visited by the Trail Riders for the first time this summer. The other expeditions will be into regions partly explored by Trail Riders since 1933.

Although dates are as yet tentative and subject to slight changes, the seven expeditions for the summer of 1937 are as follows:

Expedition No. 1—June 15 to 27—Great Smoky Mountains of North Carolina and Tennessee, Great Smoky Mountains National Park, during the season of bloom and blossom.

Expedition No. 2—July 3 to 15—Flathead-Sun River Wilderness of Montana, Flathead and Lewis and Clark National Forests, one million acres of rugged mountains and flowered valleys along the Continental Divide.

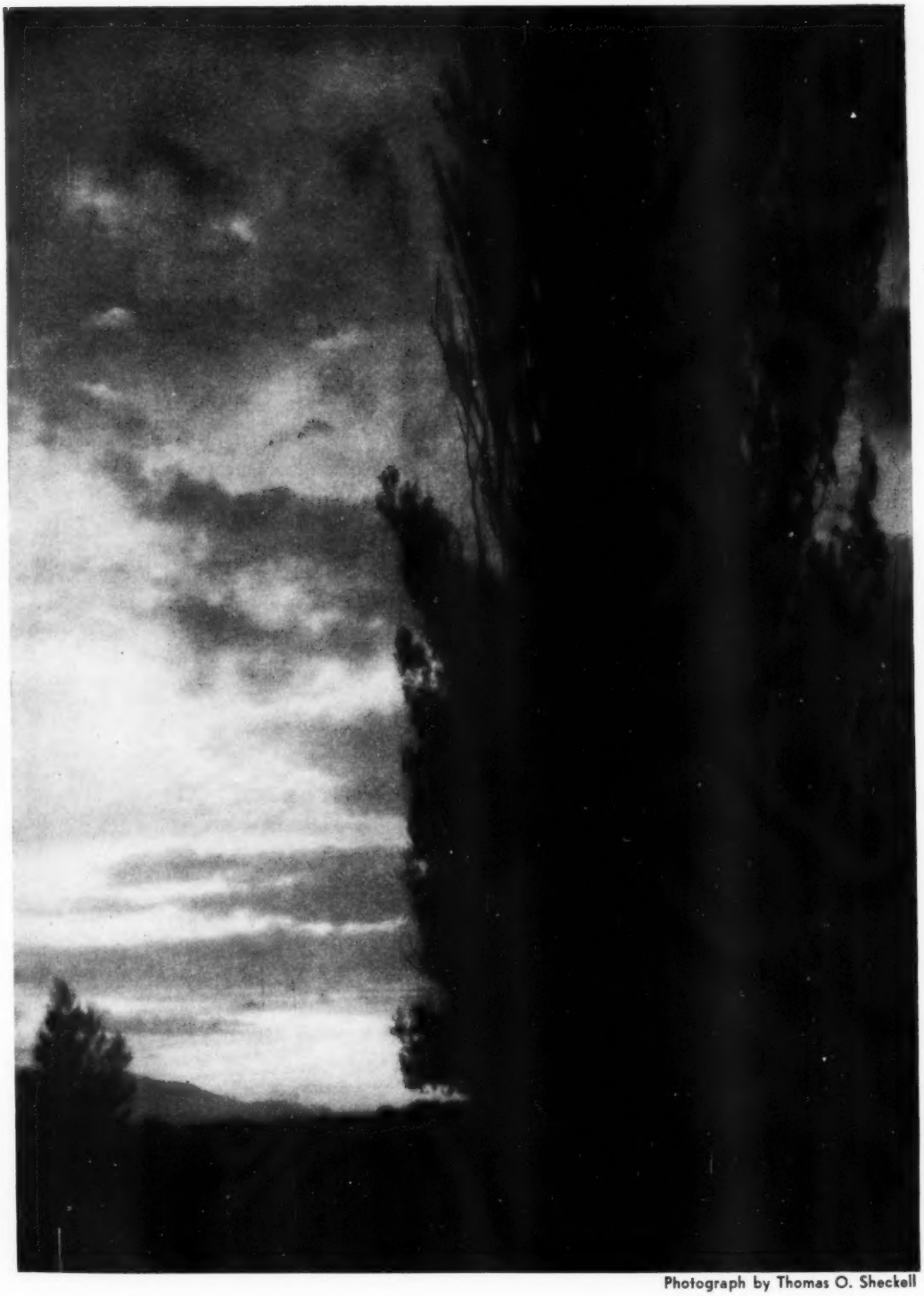
Expedition No. 3—July 18 to 31—Bridger Wilderness, Wind River Mountains of Wyoming, Wyoming National Forest, along the crest of the Northern Rockies, a land of glaciers, purple daisies and grandeur.

Expedition No. 4—August 3 to 16—Gila Wilderness of New Mexico, Gila National Forest, a country of crumbling cliff dwellings, of canyons and mountains, the (*Continuing on page* 145)

Photograph by Joseph Baldorff

"The stormy March has come at last,
With winds and clouds and changing skies—"

TREES AGAINST MARCH SKIES



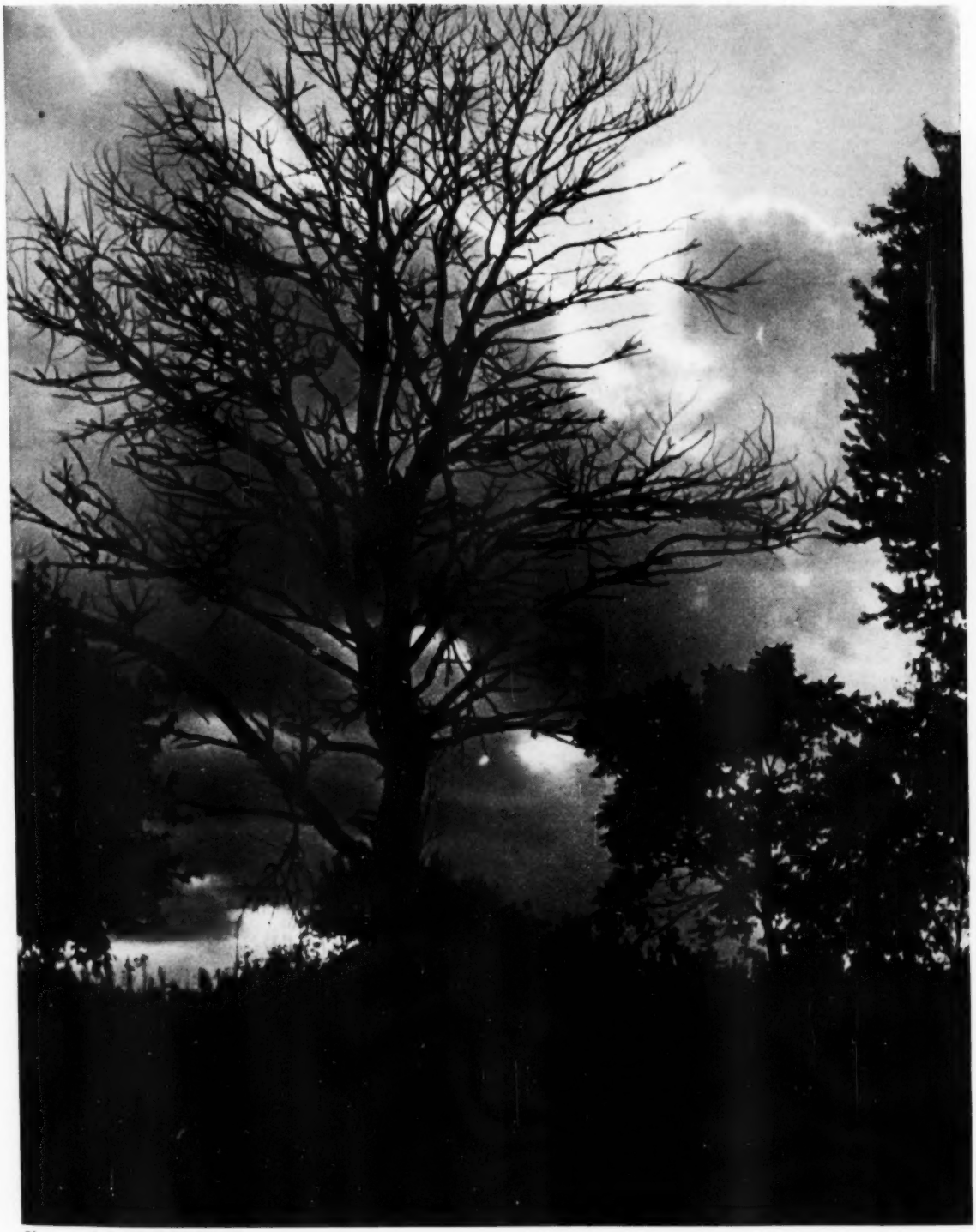
Photograph by Thomas O. Sheckell

"We are the voices of the wandering wind"—

March silhouettes on the following two pages made by Norton Louis Avery in Michigan and Manley Brower, in Florida.

"As the scarves of a cloud,
Winding the brow of a mountain."

". . . . . the windows of the sky,
Through which Aurora shows her brightening face."



Photograph by G. F. Blackburn

"And Wind, that grand old harper, smote
His thunder-harp of trees."

CONSERVATIONIST IN MEXICO

By ALDO LEOPOLD

THE predatory Apache of our Southwest was early rounded up and confined in reservations, whereas across the line in Mexico he was, until his recent near-extinction, allowed to run at large. Therefore our southwestern mountains are now badly gutted by erosion, whereas the Sierra Madre range across the line still retains the virgin stability of its soils and all the natural beauty that goes with that enviable condition.

This seemingly disconnected reasoning will appear absurd only to those who still believe that the world is composed of a number of things, the inter-relationships of which are obvious or nearly so.

As a matter of fact, the statement is substantially accurate. This article aims to explain why and to philosophize on the irony of it. For it is ironical that Chihuahua, with a history and a terrain so strikingly similar to southern New Mexico and Arizona should present so lovely a picture of ecological health, whereas our own states, plastered as they are with National Forests, National Parks and all the other trappings of conservation, are so badly damaged that only tourists and others ecologically color-blind, can look upon them without a feeling of sadness and regret.

Let me hasten to add that this enviable contrast holds good only for the mountains. The low country on both sides of the line has been equally abused and spoiled. The Sierras escaped because of the mutual fear and hatred between Apaches and Mexicans. So great was the fear of Indians that the Sierras were never settled, hence never grazed, hence never eroded. This holds true up to Pancho Villa's revolution of 1916. During the revolution bandits performed the same ecological function as Indians. Since then, depression and unstable land policies have served to keep the mountains green.

It is this chain of historical accidents which enables the American conservationist to go to Chihuahua today and feast his eyes on what his

A Mexican experiment in resettlement

Ungrazed, the Sierra Madre holds its soils

own mountains were like before the Juggernaut. To my mind these live oak-dotted hills fat with side oats grama, these pine-clad mesas spangled with flowers, these lazy trout streams burbling along under great sycamores and cottonwoods, come near to being the cream of creation. But on our side of the line the grama is mostly gone, the mesas are spangled with snakeweed, the trout streams are now cobble-bars.

Somehow the watercourse is to dry country what the face is to human beauty. Mutilate it and the whole is gone. The rest of the organism may survive and even do useful work. The economist, the engineer, or the forester may feel there has been no great loss and adduce statistics of production to prove it. But there are those who know, nevertheless, that a great wrong has been committed—perhaps the greatest of all wrongs, and the sadder because both unintentional and irretrievable.

The traveler finds everywhere check-dams, centuries old. Who built them, when and why?

Lazy trout streams bubbling amid the trees come near to being the cream of creation

The Chihuahua Sierras burn over every few years. There are no ill effects, except that the pines are a bit farther apart than ours, reproduction is scarcer, there is less juniper, and there is much less brush, including mountain mahogany,—the cream of the browse feed. But the watersheds are intact, whereas our own watersheds, sedulously protected from fire, but mercilessly grazed before the forests were created, and much too hard since, are a wreck. If there be those who do not yet know they are a wreck, let them read Will C. Barnes' history of the San Simon valley of Arizona in the October issue of AMERICAN FORESTS.

The Chihuahua Sierras have been grazed only near the Mormon colonies. The Mormons were not afraid of Apaches and they sprinkled many a mountain valley with their brick ranch houses. Near the colony I visited—Colonia Pacheco—overgrazing and erosion have not progressed as far as they had in the White Mountains of Arizona in 1910. But the colonies are microscopic when compared with the bulk of the mountain area, which from my observation is for the most part ungrazed.

Very recently the Mexican "Resettlement Administration" has scattered landless voters over many a non-irrigable mountain valley, to dry-farm if the Lord sent rain and to get along somehow in any event. The only improvement over our own Act of June 11, 1906, is that the scattering is done only where there is enough land for a community and that the settlers have no guns.

These forest homesteaders are "deadening" the pines, scratching corn into the thin soil and day-herding their goats on the nearest hillside, a type of agriculture intermediate between an Appalachian hill-farm, a Philippine caigin, and a New Mexico "Small Holding Claim." I recognize the land pressure which forces the adoption of such a policy, but I also recognize the inevitable ruin which will follow. One can tell when nearing one of these settlements by the thinning sod, the thickening weeds, the browsed-off willows, and the oaks skinned for tanbark. Just so were our own dry canyons sent to their death.

But these resettlements are also as yet microscopic when compared with the bulk of the mountain area. They occur only near roads, and roads are as yet poor and far between. Engineers would call the mountains roadless.

In Arizona and New Mexico there are in general two kinds of deer range, the overstocked and the nearly empty. Most of the herds are very thin, but every few years some new spot flares

up with a sudden overpopulation of deer. The Kaibab was the first of these, but there has been a new one every year or two for a decade. Often, before the heavy wheels of legislative adjustment can turn, the range is severely injured. Most laymen have no comprehension of what a serious thing it is to overtax a browse range, especially in an arid climate. Recovery is a matter of decades, rather than of years. Some ranges wash away before they can recover.

Deer irruptions are by no means confined to the Southwest. They are breaking out from Georgia to Wisconsin, and from California to Pennsylvania. Why? Have deer always fluctuated from scarcity to overabundance? History would hardly so indicate.

In Chihuahua one can glean, by comparison, a hint of what may be the matter with our deer. Whitetail deer are abundant in the Sierras, but not excessive. So are wild turkeys. In nine days of hard hunting, two of us saw 187 deer, fifty of them bucks of two or more prongs. Deer irruptions are unknown. Mountain lions and wolves are still common. I doubt whether the lion-deer ratio is much different from that of Coronado's time. There are no coyotes in the mountains, whereas with us there is universal complaint from Alaska to New Mexico that the coyote has invaded the high country to wreak havoc on both game and livestock.

I submit for conservationists to ponder the question of whether the wolves have not kept the coyotes out? And whether the presence of a normal complement of predators is not, at least in part, accountable for the absence of irruption? If so, would not our rougher mountains be better off and might we not have more normalcy in our deer herds, if we let the wolves and lions come back in reasonable numbers?

At the very least, the Sierras present to us an example of an abundant game population thriving in the midst of its natural enemies. Let those who habitually ascribe all game scarcity to predators or who prescribe predator control as the first and inevitable step in all game management, take that to heart.

On the dry tops of the highest mesas, in the bottoms of the roughest and wildest canyons, anywhere in fact where a short watershed is intercepted by a ledge, dyke, or other favorable spot for impounding soil, the traveler in the Sierras finds loose-masonry dams constructed by the hand of man. There are hundreds of them.

How old are they? Who built them? What for? The first two questions find a ready answer. Not infrequently a 200-year-old pine is found growing behind the dam, its root-collar flush with the surface of the impounded soil. Obviously the dam is older than the tree. Unless Coronado and his captains had an unsuspected weakness for laying rock, and also more time and manpower than their journals indicate, these dams were built by prehistoric Indians.

In one case I saw the rocks of the dam clutched tightly in the roots of a great tree. Nobody stuck them there to fool tourists. Moreover there are dams in spots no white man has ever looked upon.

What were the dams for? This question is not so easy to answer. Some local residents say "erosion control." It might be conceivable that the Indians built dams to protect their more valuable soils—say in irrigated valleys—against erosion. But many of the dams I am describing are found around the edges of high mesas a thousand feet above the nearest permanent water. If such a spot ever showed erosion, the natural thing would be to seek a new spot, rather than to laboriously check a gully with rocks.

One is forced back to the theory that these dams were built to create little fields or food patches. The purpose was to impound soil where it would be irrigated by the runoff from slight rainfalls. The choice of locations strongly substantiates this belief. Short watersheds composed mostly of bare rock were especially favored, provided there was a ledge or dyke or narrow place offering secure footing for the dam. In such spots the lightest rain produced runoff and irrigated the field, whereas the heaviest rain could not gather headway enough to tear out the dam.

What crops were raised in these little fields? This, to me, is a perplexing question. Their small size and the wide dispersion seems to preclude constant patrol against game, while the absence of metal tools seems to preclude game-proof fencing. Surely there were deer, turkey, and bears enough in those days to wreck any crop of plants palatable to them. The clue must lie in plants palatable to Indians but not to animals. Corn, it appears, is not molested by game until the ears form, but after that I fail to see how it could get by. Squash and melons would have the same weakness. Beans would seemingly be vulnerable at all times. Potatoes, peppers, and tobacco might possibly qualify as game-proof. I wonder if the archeologists have considered game-damage in reconstructing their picture of prehistoric Indian agriculture?

Everybody in Mexico (*Continuing on page* 146)

THE WESTERN RANGE: AN EPITOME

Mile upon mile he walked the virgin range,
Escalante the priest.
The grass sprang proudly back erect, released
Without a change
Upon the range,
Unbowed by those first steps that left no path.

But now
the grass
is gone. . . .

Mile upon mile I ride the used-up range,
In rising spirals of dust.
Unnumbered cloven hoofs have laid a crust
Naked and strange
Upon the range;
Dismantled earth, we now receive your wrath.

—Mildred B. Williams.

EDITORIAL

The Coming Forest Conference

THE PRESIDENT of the National Lumber Manufacturers Association has called a Conference on Forest Conservation, to meet in Washington April 7-9. The conferees will be representatives of public agencies and organizations, private lumber trade associations, and forest-owning and operating groups and individuals, fairly evenly divided as between public and private interests. The purposes of the conference are: (1) To review industry practices in forest conservation and recommend such further developments as seem desirable; (2) To review public activities and legislation pertaining to forest conservation and recommend needed public action and legislation, with reference particularly to supporting and giving full effect to the program of the industry.

This program of the industry is understood to be the joint forest conservation program, recommended by the conference held in January, 1934, and carried forward under the authority of the National Industrial Recovery Act and the Lumber Code. That program was composed of two parts: industry action, involving rules of forest practice and the progressive application of the principle of sustained yield to private forest operations; and public action which was to include Federal and State legislation calculated to remove obstacles to continuous private forest ownership, and public administration along lines which should encourage permanent private forestry.

It will be recalled that the Schechter Decision invalidated the National Industrial Recovery Act and swept away the legal basis for this program. Since July 1, 1935, the organized lumber industry, representing fifty to sixty per cent of production, has endeavored to carry out voluntarily its part in this joint program. The federal legislative proposals which were formulated following the 1934 Conference have not been enacted by the Congress, mainly for the reason that the President has not seen fit to sponsor them. On the other hand, federal administrative agencies in the field of conservation have cooperated with private agencies to the full extent permitted by existing law. State legislation and administration have made definite progress in the direction of effectuating the program.

There are many reasons why such a program, jointly supported by public and private agencies, should be pushed ahead vigorously. But first, in view of the lack of a federal legal basis, it is highly desirable that those interested in the former program should convene and attempt to discover a foundation upon which such a program can once more be erected. The possibility which first comes to mind is that such a foundation might be formed of three pillars, namely private industry action, state forest codes, and federal cooperation.

It should be remembered that the key to much of the forest problem is continued ownership and enlightened management of private forest lands, and that there exist today definite obstacles to such ownership. Industry spokesmen maintain that great progress has been made in popularizing the observance of forest practice rules, and that some progress has been made in effectuating sustained yield forestry. But they deplore the fact that in addition to economic obstacles, there is an uncertainty about what the future holds for private enterprise in all fields, and this uncertainty tends to discourage ventures in the new field of private forestry.

It is believed that forest practice rules could be made applicable to all operators by prompt enactment and effective administration in each State of laws containing the substance of the rules applicable in the State. It is highly desirable that operators, who voluntarily observe such rules, shall be protected from competition of those who do not. It is further believed that the expenditure of Federal money for cooperative forest protection and research and for forest acquisition might well be predicated upon compliance with an adequate forest code within each State. At the same time, administration of Federal forest lands might be so conducted as to encourage private forest management.

It is not enough for conservation enthusiasts, or even for representatives of the government, to declare that a "New Deal in Forest Conservation" is to be forthcoming from the Congress. Neither is it enough for representatives of private agencies to say that given a few much-needed laws, they can work out their own salvation. The problem is too complex. The immediate and vital need is for the two groups to take counsel together and develop mutually a program which can be supported and carried forward by all.

PINE BEETLE LOGGING COMPANY

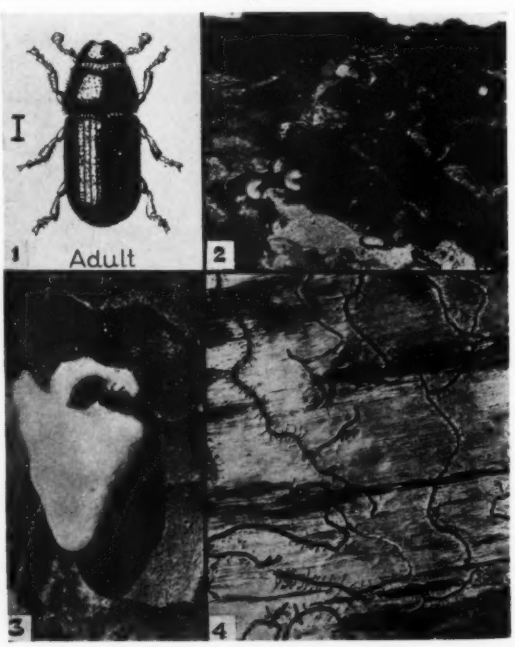
A beetle-killed Forest in Oregon

Courtesy Ewauna Box Company

By C. S. MARTIN

IN THE ponderosa pine forests of the Pacific slope, the oldest, largest and most aggressive consumer of pine stumpage is the Pine Beetle Logging Company. It is a family company of ancient lineage, known as *Dendroctonus brevicomis.* In the Idaho white pine territory it receives considerable assistance from an allied concern—first cousins, in fact—called *Dendroctonus monticolae.* This family concern is the lumberman's greatest competitor, often taking a harvest equal to or exceeding the combined cut of all other operating companies. Yet this outlaw company cannot be regulated by any ICC or SEC, as it makes no profits, pays no dividends and its products do not enter the channels of trade.

During recent years the Pine Beetle Logging Company has increased its activities in utter disregard of lumber codes, rules of conservation, minimum hours or business ethics. Aided by drought, the company, with its billions, if not trillions, of industrious workers, has so increased and spread its operations during the past five years in California, Oregon, Washington, Idaho, and Montana that it has harvested over eleven billion board feet of ponderosa pine and white pine timber. This is a billion board feet more than was logged by the entire lumber industry in these states during



1.—The beetle "loggers" are dark brown, hard-shelled, and no longer than the ordinary house-fly

2.—From their eggs hatch small, white larvae or grubs

3.—When attacked, the tree fights back with exudations of gum to "drown" the beetles

4.—But once below the bark, winding tunnels cut the tree's flow of sap

Photographs by the Bureau of Entomology and Plant Quarantine

the same period. This astounding loss is revealed in conservative estimates prepared by the Bureau of Entomology and Plant Quarantine of the Department of Agriculture, based on its extensive surveys, and those of the Forest Service, and Office of Indian Affairs. During the same period scarcely one-eighth as much timber has been lost by fire in these states.

Few people, other than timber owners, foresters and entomologists concerned with the pine beetle problem, have any conception of the destruction wrought by these small insects. In the pine forests of the Northwest are thousands of acres on which a high percentage of the commercial timber has been harvested by these beetles—a harvest which is food for the beetles but a total loss to man. While fire damage has been publicized, the less spectacular but far greater damage caused by these small, silent "loggers" has passed almost unnoticed.

Adult members of the Pine Beetle Logging Company are dark brown, hard-shelled beetles with a body no longer than the ordinary house-fly. A single beetle in quite ineffective, but with its mate and in company with thousands of fellow workers, the largest and thriftiest pine in the forest may fall before its attack.

From June to October the pine beetles are in flight, searching for suitable trees to attack. Once a tree is selected, beetles alight on the trunk, crawl into crevices of the bark and bore a small, round hole directly through the bark into the cambium layer. If they encounter a heavy flow of sap, they may be drowned at the entrance. If the sap flow is weak, they are able *(Continuing on page 144)*

Right—The trail of the beetle girdlers beneath the bark

Below—Felling the tree and burning it is the only control

WESTERN RED CEDAR

***Thuja plicata*, Don**

By G. H. COLLINGWOOD

WESTERN red cedar ranks among the large trees of the Pacific Coast and is found from southern Alaska to northern California, on sites where the soil is moist. It grows at elevations ranging from sea level in the far north to 7,000 feet in the northern Rocky Mountains, where the magnificent proportions of the coastwise tree are reduced to those of a small wind blown bush. Heavily buttressed trees 150 to 175 feet high and five to eight feet in diameter are fairly common, while exceptional trees attain heights of 190 to 200 feet with occasional diameters of ten to sixteen feet. The center of large trees is usually hollow.

In densely crowded stands the trees have long clear trunks, frequently with branches below the main crown. The narrow conical crown of young trees reaches to the ground, and even in dense stands the lower branches are retained until the tree reaches heights of fifty to eighty feet. In old trees the crown extends in width, becoming short and blunt. On young trees the slender limbs curve upward, but with age they swing downward in a long graceful curve. While diameters of twenty-four to forty inches are reached in 200 to 500 years, some of the largest trees are believed to be 800 to 1,000 years old.

Small scale-like, bright green leaves form flat, lacey sprays after the manner of the eastern white cedar, *Thuja occidentalis*. They are glossy above, distinctly darker and with frequent white, triangular spots beneath, remain on the tree about three years, and have a pleasant odor.

Thuja plicata is derived from the Greek and Latin, and refers to a tree having sweet smelling wood whose leaves are plaited or folded.

In April small inconspicuous flowers of the two sexes appear usually on different branches of the same tree. The flowers are about one-twelfth of an inch long and develop singly at the ends of the twigs. The staminate ones are yellowish and the ovulate are pinkish at pollination. From the latter, leathery brown cones about one-half inch long comprised of six fertile scales, mature by the end of August. Each fertile scale may bear two tiny double-winged

Western Red Cedar grows in densely crowded stands to heights of 175 feet and more

seeds which are shed in the fall of the same year. The upturned empty cones remain on the tree until the following summer. The cinnamon red, stringy, fibrous bark is seldom over seven-eighths of an inch thick and so tough that the Indians peel strips twenty to thirty feet long from young trees for making baskets and even for rope or fish line. The strongly aromatic wood is reddish brown when freshly cut, but becomes dull brown with exposure. It is free from pitch, of medium to coarse grain, very soft and brittle, weighs twenty-four to thirty pounds to the cubic foot when air dry, and is unusually resistant to decay or insect attack. Probably two-thirds of all western cedar goes into shingles of which it forms the bulk of our supply. Other uses include lumber, poles, posts, piling, boats, pattern stock, laundry machinery, cigar boxes, and greenhouse equipment. Paints, varnishes, and lacquers adhere well and it glues readily. Because it works easily and scarcely warps or shrinks it is favored for the exterior of houses. The Indians of the Pacific Northwest used it for totem poles, canoes, and lodges.

Flat, lacey sprays of scale-like, bright green leaves and up-turned leathery brown cones characterize this tree

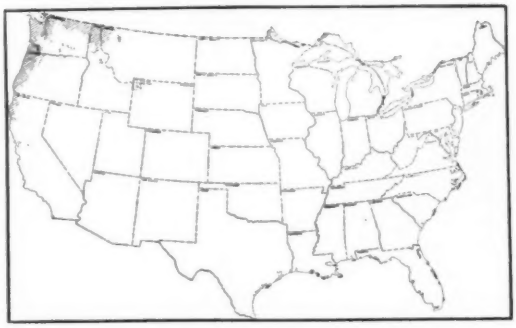
The annual cut of western red cedar for lumber was about 130,000,000 board feet in 1934, which represented a steady drop since 1905 when the production was approximately 290,000,000 board feet. The manufacture of western red cedar shingles consumes 500,000,000 to 800,000,000 board feet, while an additional 100,000,000 board feet is cut for poles, posts, and piling. The annual cut for all purposes, accordingly, approximates 700,000,000 to over a billion board feet. The commercial stand within the United States is estimated to be 53,348,000,000 board feet, of which the bulk is in the Pacific Coast region.

Western red cedar does not grow in pure forests, but forms three to twelve per cent of the total growth in company with Douglas fir and western hemlock.

The moist character of the sites where western red cedar grows is an important factor in protecting the tree against fire. The thin bark offers little fire resistance, so that when fires do occur the trees are usually fatally injured. In contrast, however, neither insects nor fungi are major sources of damage.

Although few efforts have been made to use it for reforestation, it is recognized as a conifer of unusual promise for ornamental planting on the West Coast as well as in the eastern states as far north as Massachusetts. It assumes a graceful pyramidal outline and prospers in fertile well-drained soil.

The cinnamon red, fibrous bark is less than an inch thick



Natural range of Western Red Cedar within the United States

ALONG THE TRAIL

MILLION YEAR OLD GINGKO

New construction work along the gorge of the Columbia River Highway may destroy what remains of Oregon's million-year-old gingko tree, according to Albert Weisandanger, ranger in the Eagle Creek District of the Mount Hood National Forest.

The ancient fossil, estimated all the way from five to ten million years old, was uncovered in 1929 during road construction. It lies in a sheer wall of rock that rises from the highway just West of Tanner Creek, not far from Bonneville where a great new federal dam is under construction. Readily identified by geologists as foliage of the rare gingko tree, it was found close to other fossils, among which are maple, sweet gum, hickory and oak.

Millions of years ago, say geologists, the gingko spread over much of the Northern Hemisphere. Today it is rare in any land, and most of the trees now living are protected in the "sacred forests" of the Orient. The Columbia River fossil is in a mud-sand-lava formation and tells of a time when Oregon climate, mild enough today, was even tropical.

Ranger Weisandanger erected a marker on the spot, and a few years ago he secured a gingko sapling from the park bureau of Portland and planted it near its fossil ancestor. This growing gingko is now eight feet high and doing well. Its leaves sweep the rock where the fossil lies embedded.

Geologists, both amateur and professional, have so dug and chipped at the ancient gingko that the remains have been steadily disappearing. Knowing his geologists from long experience, Ranger Weisandanger is of the opinion that nothing short of a tall, spiked and rugged iron fence would keep them away from so rare a fossil.

But in the present case it seems likely that new highway construction will remove what the geologists have left of Oregon's only known gingko tree of natural growth.—*Stewart H. Holbrook.*

GOOD WILL PARKS

Forest, mountain and man have joined forces to promote international good will and to extend to man the peace and dignity which forest and mountain enjoy.

A stone of crystallized pumice from the topmost levels of majestic Mount Rainier has been brought down from its quiet, lonely resting place and encased in a polished, handmade chest of Alaska cedar, native to Mount Rainier National Park, as a gift from the United States National Park Service to Japan.

And in Japan, 4,900 miles away, mountaineers of the National Park Division of the Sanitary Bureau of the Japanese Department of Home Affairs climbed up the picturesque, snow-covered slopes of beautiful Fuji-yama, found another stone, carried it down to the valley and laid it in a smooth, shiny box of Japan's cherry wood ready for a long journey to America as a gift from Japan's Park Service. Crowds lined the trails as the pilgrims descended. They brought five stones with them from which one of the Olvine Basalt was chosen. The box is made from a rare piece of mountain cherry, several hundred years old.

Simple but sincere ceremonies were observed on both sides of the Pacific in connection with this friendly exchange.

Mt. Rainier's Good Will Gift to Japan

In Mount Rainier, Superintendent Tomlinson presented the Rainier stone to the Honorable Issaku Okamoto, Japanese Consul to Seattle, who in turn sent it on its way via the Japanese steamship *Heian Maru.* It fittingly arrived just at the time Japan was starting development of a system of twelve National Parks. The stone, about the size of a brown bear's head, is kept on exhibition in the Fuji and Hakone National Park.

In Japan, the cherry box and the Fuji stone were graciously bestowed upon Ambassador Joseph C. Crew for transmission to the United States. They are now on display in the Mount Rainier museum.

It seems particularly fitting that these two mountains, a vast ocean apart but much alike, should be instruments of friendliness. Both have been worshiped by their people—the Indians, it is said, calling Mount Rainier "the mountain that was God," and the Japanese believing Fuji their sacred mountain; both are high and beautiful—Mount Rainier 14,408 feet, Fuji, 12,365—and almost always snow-clad; both are of volcanic origin; both can be seen from land and sea, eternal and great.—*Isabelle Story.*

BELIEVE IT OR NOT

In front of my study window in Waco, Texas, I have a bird bath, a magnolia tree and a long pole on top of which is kept beef suet. This fall I began to feed the birds cracked corn, millet, wheat and sun flower seed.

I have a definite time for feeding them, promptly at noon. Long before the hour the birds gather by the hundreds in the surrounding trees and shrubbery—blue jays, red birds, mocking birds and endless sparrows. A flower pot is sunk under the magnolia tree, and this and the space around it filled with feed.

First to feed are the jays while the others stand around and watch. They take a bill full and fly a short distance to relish it. Then come swarms of sparrows and, struggling in their midst, are the red birds, male and female. The red birds seem to be rather afraid of the great number of sparrows and they also take a bill full and depart.

The sparrows are always fighting among themselves for full possession of the flower pot. They spend one minute eating, then in sudden fright clear out, and in another minute are back for their feed. This they keep up hour after hour.

The other day while at my desk writing, I let the noon hour pass, the regular feeding hour. My colored man, when he wants me, comes to my window and taps. As I sat writing I heard a persistent tapping on the window and, looking up, expected to see the man. Instead there stood three sparrows looking at me through the glass, and the center sparrow, chairman of this committee sent to notify me, was tapping heavily on the window pane. Believe it or not?—*W. Goodrich Jones.*

HOW LONG WILL WOOD LAST?

How long will wood last? If someone should ask that question, tell him 60,000 years! John Voss, science instructor in a Peoria, Illinois, high school, found pieces of tamarack wood while digging in a peat bog. The stratum of the bog in which the wood was found dates back to the Sangamon interglacial period, 60,000 years ago.

This wood is not petrified. On the contrary is soft and crumbling, although it holds together under careful handling. The cell structure is remarkably well preserved.

In the bog Mr. Voss also found fossilized pollen of trees, and leaves in great quantities, all readily identifiable as to genus. By making a careful count under the microscope, he established relative statistics showing the type of trees growing at different periods in the earth history and from this deduced the changes in climate which have taken place during the past 60,000 years.—*Stanley Tess.*

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READERS' FORUM

REGULATING CHRISTMAS HOLLY

SIR: I live in the Philadelphia-Camden suburban area and note that in the scraggly woodland areas in my neighborhood the holly is so thoroughly cut that it cannot reproduce. The young holly is cut and broken so that it does not reach a height of more than two yards.

This cutting for Christmas greens is done mainly by an indigent mulatto population. I propose that holly be placed under federal protection by the following means:

Cutting to be permitted only in southern National Forests where holly is sufficiently established to permit controlled harvesting. Cutting and preparing for market to be done only by National Forest employees. Trees are to be pruned so that berries and main branches are retained for reproduction by means of seedling and by sprouting of these branches. All holly, wreaths, etc., to be labeled securely, and in a manner that will assist to the maximum in enforcing the provisions of the law. All shear cuts to be made with serrated shears made expressly for such service in the National Forests. All marketing to be made only in markets under the supervision of federal market agents.—*Herbert I. Washburn*, Magnolia, New Jersey.

EXPLORING BLACK LOCUST

SIR: The black locust tree is being used extensively by the Erosion Service in its plantings. Being a soil holder, and also presumably a soil builder in consequence of its qualities as a legume, the locust tree deserves more than ordinary attention. It has occurred to me that a comprehensive study ought to be made of the potential value of the pod and bean. Should it be discovered that this annual product of the locust tree has a marketable value, the consequences might be far-reaching.

The Country Home Magazine has fostered a chemurgic movement to the end that industrial uses may be developed for farm products and that new non-competitive crops shall be found. It is not beyond the realm of possibility that black locust plantings would yield heavy enough tonnage so that the pod's content of sugar, starch, albumin, protein, or whatever other substance may be in it, would be industrially attractive once the content was fully explored.

I should be much interested in information either as to actual yields or as to the possible content of this annual tree product.—*Wheeler McMillen, Editor, The Country Home Magazine*, 250 Park Ave., New York.

CONNECTICUT'S WHIPPING TREE

SIR: According to an article in AMERICAN FORESTS for January (1937), Alfred, Maine, claims the only surviving "whipping tree" in New England. That may be true. But a few miles from my home in Manchester, Connecticut, there is an ancient white pine, still alive, which was pointed out to us children forty years ago as an old whipping tree. It was supposed to have served a fair sized village which I can remember as only a score or so of cellar holes in which trees were growing. The whole site was hidden in forest that had taken possession of the abandoned colonial settlement.—*Knight H. Ferris*, Manchester, Connecticut.

A TREE TESTIFIES

SIR: About three years ago I was engaged to determine the age of an elm that stood on the east bank of the Hudson River, near the end of the new Albany-Rensselaer bridge. In the court action between Belkin and the State of New York, the State attempted to prove by 17th century maps and other records that the shoreline of the Hudson originally ran some 136 feet east of the Belkin house. The State proposed to annex the property without remuneration to Belkin on the basis that he was living on filled land.

At the corner of the Belkin house, however, stood this elm, ten feet in circumference. The tree was hollow but had a live shell twelve inches thick from which growth records could be taken. With an increment borer I secured ninety-six annual rings, and making due allowance for wider rings in the early life of the tree I placed its age beyond two hundred years and cut of reach of records presented by the State. No argument could sustain the theory that the tree grew in the water, or on a mud flat submerged in high tide.

As a part of my report on which I testified in court I submitted on paper a cross section of the tree with the reproduced annual rings. The evidence has stood the test of every court in which the case has been tried and the Appellate Division has recently upheld the decision of the original referee.—*James R. Simmons*, Ithaca, New York.

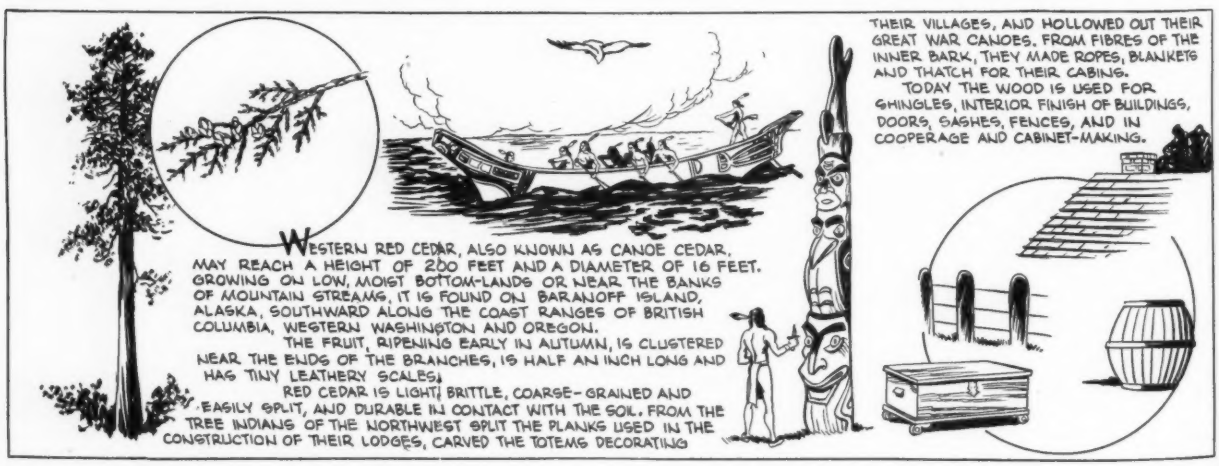
DO YOU KNOW SUCH CREATURES?

SIR: For a number of years I have been collecting the yarns dealing with the fearsome creatures of the lumber woods which have so often been detailed by the old hands to the green men in the logging camps. It has always seemed to me that the life history and habits of such well-established varmints as the side-hill badger, the wampus cat, the treesqueak, the cross-feathered snee, and so on, are distinctly American folk lore and should be carefully preserved in some sort of written records.

I can claim reasonable familiarity with a fair array of these animals, but I don't know them all. It would help greatly if you could run this letter once or twice in your paper with the idea that some of your readers who are familiar with such interesting fauna would be kind enough to write me direct giving me as complete details as possible on the habits, the habitat, and life history of any such parties with which they are familiar.

Also, any authentic photographs or drawings would be most welcome. These will be carefully copied and the originals returned safely to the leaders.—*H. H. Tryon*, Cornwall-On-Hudson, New York.

TREES AND THEIR USES — No. 23 — WESTERN RED CEDAR


WESTERN RED CEDAR, ALSO KNOWN AS CANOE CEDAR, MAY REACH A HEIGHT OF 200 FEET AND A DIAMETER OF 16 FEET. GROWING ON LOW, MOIST BOTTOM-LANDS OR NEAR THE BANKS OF MOUNTAIN STREAMS, IT IS FOUND ON BARANOFF ISLAND, ALASKA, SOUTHWARD ALONG THE COAST RANGES OF BRITISH COLUMBIA, WESTERN WASHINGTON AND OREGON.
THE FRUIT, RIPENING EARLY IN AUTUMN, IS CLUSTERED NEAR THE ENDS OF THE BRANCHES, IS HALF AN INCH LONG AND HAS TINY LEATHERY SCALES.
RED CEDAR IS LIGHT, BRITTLE, COARSE-GRAINED AND EASILY SPLIT, AND DURABLE IN CONTACT WITH THE SOIL. FROM THE TREE INDIANS OF THE NORTHWEST SPLIT THE PLANKS USED IN THE CONSTRUCTION OF THEIR LODGES, CARVED THE TOTEMS DECORATING THEIR VILLAGES, AND HOLLOWED OUT THEIR GREAT WAR CANOES. FROM FIBRES OF THE INNER BARK, THEY MADE ROPES, BLANKETS AND THATCH FOR THEIR CABINS.
TODAY THE WOOD IS USED FOR SHINGLES, INTERIOR FINISH OF BUILDINGS, DOORS, SASHES, FENCES, AND IN COOPERAGE AND CABINET-MAKING.

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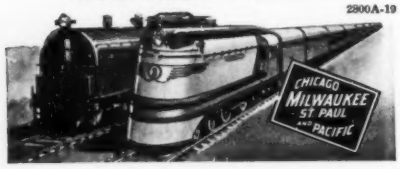


SKYLINE DRIVE TOLL

With a decision by Secretary of the Interior Harold L. Ickes expected momentarily, the opposition of Virginians to projected plans for a twenty-five-cent charge to Skyline Drive users gained impetus as Wilbur C. Hall, chairman of the State commission on conservation and development, outlined his objections.

"The people of Virginia, aided by a few citizens of other states contributed $1,000,000 to the fund to buy the park land for the Federal Government and the General Assembly appropriated another $1,000,000," he pointed out.

"When the money was requested of both the citizens and the legislature it was the general impression that the park would be free.

"Where admission fees are charged in some National Parks, services and accommodations are provided which are not available in the Shenandoah and apparently will not be for some distant time.

"Any charge to the park would virtually be a toll charge on the use of Skyline Drive, the most outstanding feature of the area. Toll charges are today indefensible on highways built with public funds."

HOW TO HUNT IN MEXICO

To prevent delays for Americans planning hunting expeditions to Mexico, the United States Biological Survey calls attention to recent Mexican hunting regulations requiring permits from proper authorities.

For the issuance of permits, Mexico has been divided into three zones. Hunters in that part of northern Mexico from and including the State of Chihuahua and west should make application for permits to *Oficina Forestal y de Caza y Pezca*, Chihuahua, Chihuahua. For hunting permits in northern Mexico east of Chihuahua, applications should be made to the office of the same name in Monterrey, Nuevo Leon. Applications for the central and southern district should be addressed to this office in Mexico City.

American hunters in Mexico also must be prepared to deposit an individual bond of about $140.

COLORADO FOREST POPULAR

The Pike National Forest is becoming one of the most popular recreation areas in Colorado, where opportunities for recreation are almost limitless. Of the 1,665,000 people who visited the National Forests of the State in 1936, nearly 900,000 found their way to the Pike for picnicking, camping, fishing and hunting.

Convenient to Denver, the Pike Forest has been greatly improved for recreational use by the development of the Echo Lake project in cooperation with the city of Denver. Other areas have been developed from Squaw Pass to Echo Lake and it is estimated that 500,000 people made the circle trip to Echo Lake and over the Clear Creek road to Idaho Springs during the year.

FAMOUS INDIAN LODGE RESTORED

Restoration of a prehistoric Indian ceremonial council at Ocmulgee National Monument project, near Macon, Georgia, is expected to begin soon.

The council chamber is one of the most interesting archeological finds in the country. It is a circular, earthen chamber, much like the kiva of the Southwest. The entire clay floor is intact, and a portion of the circular wall is standing.

There is a large eagle effigy altar or dais on which three seats are fashioned, and forty-seven other council seats line the wall and face a baked clay fire pit in the center.

An inner structure of four wooden central pillars supporting the roof of rafters, matting and clay, rebuilt from evidences revealed by excavations, later will cover all signs of modern construction.

When structural restoration is completed, the original soil will be placed over the entire unit to recreate its primitive appearance. The lodge then will resemble a great earthen beehive.

NEW NAME FOR RECREATION FOREST

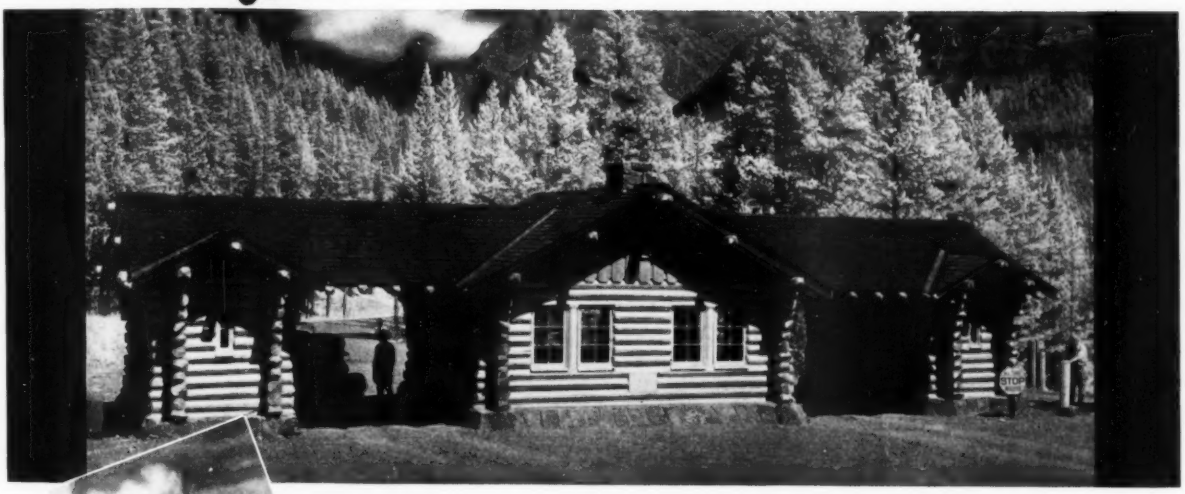
The name of the Santa Barbara National Forest, in California, has been changed to Los Padres National Forest, largely because of confusion of the forest with the county and the city of the same name.

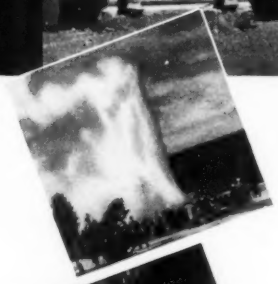
Los Padres is the largest National Forest in California. It contains nearly 2,000,000 acres, mostly rugged mountain land.

Many of the historic towns and ranches of early California are in the vicinity of the forest.

The cities and the fertile valleys are connected by excellent highways. The Forest Service also maintains hundreds of miles of roads and trails much used to reach recreational grounds and has developed many picnic and camp grounds. Its natural advantages, its scenic values, its development and accessibility have made the old Santa Barbara Forest one of the best-known recreational areas in the West.

Announcing A SPECTACULAR NEW GATEWAY to YELLOWSTONE PARK





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ATLANTIC CITY

WHERE ARE WE IN FOREST EDUCATION?

BY W. C. McCORMICK

I gave my first "lecture" on the menace of forest fire at Columbia Falls, Montana, on a sultry August night in 1910. My audience consisted of twenty residents of the little town, their eyes still burning with the smoke of the unforgettable conflagration that swept the entire Pacific Northwest at that time.

Despite the fact that this was my first appearance, so to speak, an honest urge to become a crusader against the red menace surged within me as I faced them, watched them rub their smoke-burned eyes. Here, indeed, was a need for education. People must be aroused to the dreadful toll forest fires were taking both in property and in human life. They must be made to understand that certain principles and practices were essential to the control of forest fire. But above all, they must be made aware of the human carelessness that was responsible for most of the country's fire losses. So enthusiastic I became that I was convinced that I would live to see the day when, through the medium of education, man-caused fire would be entirely eliminated.

That was twenty-seven years ago. Since then I have preached the same gospel from Washington State to the Keys of Florida. I have become quite proficient in the art of crusading. I can really "lay it on" when properly "wound up." Thousands of confirmed "burners" and otherwise thoughtless people have grasped my hand after a lecture and thanked me for showing them the light. They have promised never to burn, always to be careful.

For three full years I did absolutely nothing else but battle woods burners and carelessness while with The American Forestry Association in charge of its Southern Forestry Educational Project in four southern states. When the job was completed we felt that we had made wonderful progress. I patted myself on the back and said that it was a mighty fine job, one to be proud of.

Maybe it was. It all depends on how you look at it. Very capable lecturers, equipped with motion pictures made especially for the job, with sound trucks and exhibits, with literature prepared by the best authorities, visited every city, town and hamlet, even isolated rural communities, in four states, not once but several times. We were welcomed, applauded and thanked. Whole districts promised to join us in the war against fire. Other states, encouraged by the splendid showing we were making, equipped trucks, trained lecturers and set out to beat down the red menace.

In addition to this particular effort, the Federal Government, through the Forest Service, has carried on an intensive campaign. Every known means in education has been used. Too, associations of every kind and creed have backed this movement, spending thousands of dollars in well thought out and directed campaigns. Every state forestry organization has made educational work its keynote.

But despite all of this, if we are to put our faith in statistics, there has been a gradual *increase* in the number of man-caused fires in the country during the past twenty years. In the four southern states where intensive educational work was carried on by The American Forestry Association six years ago there has been a *very decided increase* in man-caused fires.

So where are we in forestry education?

Recently, it was brought to my attention that one of the smaller National Forest regions reported 140 man-caused fires for 1935. This, on a forest where every modern fire detection and fire fighting method is available and where educational work has been in progress for more than twenty years. It occurred on lands where it is possible to check the people residing within and entering such areas, and place real restrictions upon them. It happened on lands where trained men devote their entire time to this work of education, detection, suppression and law enforcement. It happened on holdings where an unlimited fund is available for fire-fighting and where there are laws with *teeth*.

If this condition exists on these more or less remote National Forest areas where there is a trained force and where every mile is under observation, what can we expect where less favorable conditions exist? If the great effort put forth by the Federal Government to educate the public has not borne results, *where does the trouble lie?*

My personal opinion is that we have *missed* our goal. I feel we have failed to strike at the real root of the trouble. Had we started twenty-five years ago to educate the youth of the country—*every* youth and not just a selected few—we would have by now "grown" a crop of fire-conscious people. I feel we have been entirely too *selective* in our educational work and attempted to do it with our own "specialists" rather than make it *general* and let those trained and employed to *teach* put it across in the schools as a part of their job. Conservation should have been just as much a part of every child's education as mathematics.

I fully realize that we can never make the country's timber "asbestos" covered. I am not saying we have necessarily wasted the money and effort put forth. But I do say that for the money and effort expended we have *not* gone ahead as we should. Also, I say there *are* countries where this disregard for waste does not exist.

I am an optimist. I still believe the time will come when man-caused fires will be the exception rather than the rule. And I believe this can be brought about through *education*. But not by the methods we have been using in the past—not down South, at any rate.

Preaching the gospel of fire prevention is fine in its proper place. It will reach many and gain many converts. But the great majority of those reached by lectures and articles are *not* the real menace. They are the careless ones, the thoughtless ones, they are far in the minority. The ones we must reach are those who *never* hear the preachings, never read the articles. They have an inherent desire to burn. They see no wrong in it. On the other hand they feel it is a *real* benefit. They fear no law, for they feel they are doing as their forefathers did before them, and they believe *there are still plenty of trees left.*

How are you going to reach this majority? What is the proper approach?

Lectures, articles in magazines and papers, literature especially prepared, motion pictures, radio broadcasts, essay contests and other recognized and established methods too numerous to mention are all good and secure *some* results. But they *do not* solve the problem. We must go beyond these—we must *show* people. And that can't

be done by the use of any of the methods mentioned.

The President's emergency program assisted some in solving the problem. Many of the boys who have been in the CCC camps and those who will go to them later, will return to the outside world with a better knowledge of conservation—in a general way. Some of them will carry this message back to their friends and relatives, they will be better citizens—many of them, not *all* of them.

Many of the boys who go through these camps are from the cities. When they leave the camps they will return to the cities. The cities are not places where forest fires occur, although carelessness leading to fires are bred there. So when the CCC boys return to the cities they will be better citizens, possibly fire conscious citizens, undoubtedly better acquainted with conditions which lead to fires, and also to fire prevention. But I question the value of a CCC boy as a forest educator. Indeed, back in his city environment, it is a question whether or not he will retain for long his own training. For when you come right down to it, the chief contact CCC boys have with fire is fighting fire—and they see that only as a mighty hard detail.

I feel that a wonderful opportunity was "muffed" in the CCC by not laying greater stress upon fire prevention in the educational work in the camps. You cannot give any boy a liberal education in six months or a year's time, but you can make him fire-conscious. If that had been done, if fire control had been a major subject in the educational work, then, I feel, these boys would have been able to really contribute to conservation during their entire life.

It is my candid opinion that the *only* way to put this thing across in a satisfactory manner and really get *results* is by *demonstration*. Show the timberland owners and tenants living in the timbered sections of the South that fire protection is a sound and profitable venture and you will have succeeded.

By "demonstration" I do not mean that we should establish demonstration forests throughout the land upon which every phase of approved forestry practice would be put into effect. That sort of thing is all right to reach the landowner who desires to make money from his lands. Demonstrations *right on the ground*, where the tenant farmer as well as the landlord will benefit, where they will have an *interest* in it and where it can be constantly before them is what will reach them—*that* and *nothing* else.

Use the county agent idea. He goes to a farmer and interests him in planting some crop which will not only improve his lands but at the same time produce revenue. He does not confine his work to the one class, but to *all*. Why can't we work out some scheme whereby we can prove to these same farmers that they can improve their timber crops by excluding fire, that they can produce better crops without fire?

These statements are written by one who at one time felt he really *was* versed in the art of forest educational work. It would appear that I was sadly mistaken. But, unlike many, I am more than willing to admit it.

Surely there *is* a way to get the desired results. I have my rather vague ideas, and have attempted to express them. Why not let others give their views on this important problem that has been facing foresters for a quarter century—and is *still* unsolved? Perhaps from such expressions will come the right solution.

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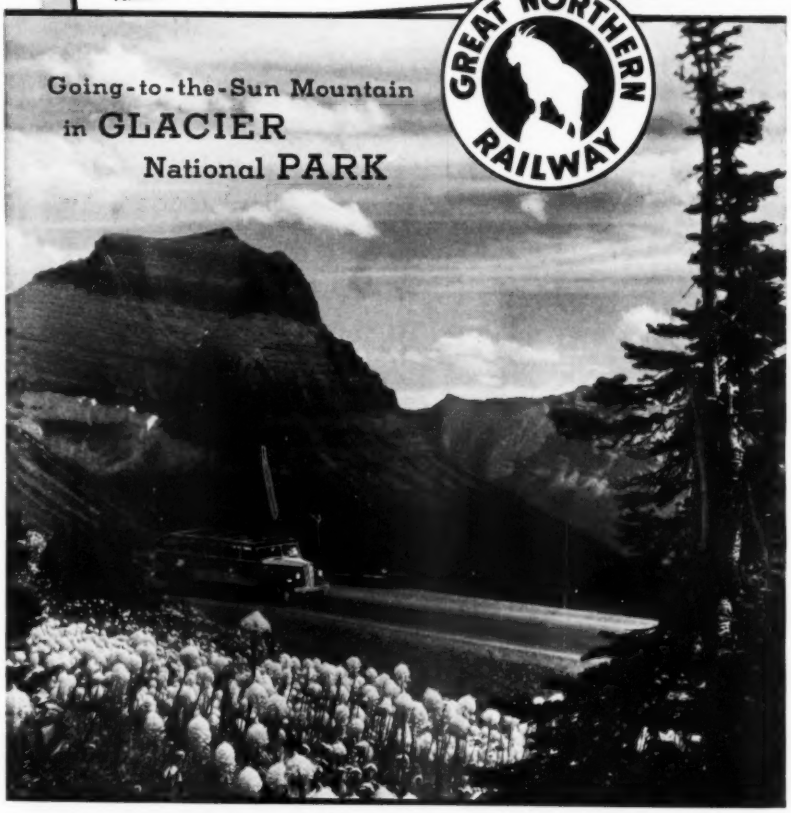

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AROUND THE STATES

SHELTERBELT TREES SURVIVE

Chinese elms as high as fifteen feet and cottonwoods more than sixteen feet tall are now growing in two-year-old shelterbelt plantings made by the Forest Service in the Great Plains. Trees that were eighteen inches high when planted in the spring of 1935 made the growth in spite of the drouth.

Honey locust planted in drifting sand in the spring of 1936 grew to a height of seven feet and cottonwood planted at the same time made a growth of nine feet before the end of the season.

Check counts obtained from the 1,277 miles of shelter strips and 6,743 acres of farm windbreaks planted in the Prairie States forestry project showed that an average of 550 trees an acre survived the 1936 drouth. The average number of trees planted an acre was 740, although the number varied from 540 to 1,000 in different sites. Counts of 800 or more trees an acre were made in some areas where soil conditions were more favorable. In many plantings, pocket gophers and jack rabbits caused more damage to the trees than did the dry weather.

Trees which have made very good growth include the green ash, cottonwood, Chinese elm, red cedar, and ponderosa pine. Many cottonwoods planted were wildings or small seedlings dug up in creek bottoms and overflow areas where they had self-seeded.

Experience gained thus far in shelterbelt and windbreak planting demonstrates the value of this type of work in the Great Plains region where an urgent necessity exists for an extensive tree planting program.

In a survey among farmers who had planted trees on their own initiative during the past, 340 farmers in twenty-six Nebraska counties reported that their trees were worth on an average of $1,046 a farm. Individual estimates ranged from $25 to $12,000 and the farm plantings varied from fairly effective windbreaks and shelterbelts to small plantations or single rows of trees that had relatively slight effect in breaking the force of the wind.

ALBRIGHT ELECTED CIVIC HEAD

Horace M. Albright, of New York, was elected president of the American Planning and Civic Association to succeed Frederic A. Delano at the annual meeting of the Board of Directors and Advisory Council, held February 12, at Washington, D. C. Mr. Delano will continue to serve the Association as chairman of its board of directors.

Mr. Albright was associated with the National Park Service from the time of its creation in 1916, serving successively as assistant director, acting director and director from 1929 to August, 1933. On that date he resigned as director to become vice-president and general manager of the United States Potash Company.

PRESIDENT'S LAND USE REPORTS

Early in February President Roosevelt transmitted with special messages to Congress two reports of sweeping national significance to the agricultural and economic prosperity of the country. One prepared by the National Resources Committee deals primarily with the country's drainage basin problems. The other, prepared by the President's Great Plains Committee, discusses in detail the future of the Great Plains.

Senator Henry Styles Bridges

Each report contemplates the enactment of appropriate legislation by the states as well as by Congress.

The Weeks Act of 1911 is cited by the National Resources Committee in its report as the beginning of the existing system in which the Federal Government grants cash to the states for specific public purposes as distinct from grants of land or of moneys derived from the sale of lands. In the case of the Weeks Act, the money is granted specifically for forest fire prevention in amounts as determined by the Secretary of Agriculture and in no case may the federal contributions exceed those of the states.

This principle, which has been applied to highways, education, and agricultural research, would be applied to a six-year national program of public works to be put into effect in accordance with the immediate economic needs of the country.

That the plans may meet the needs of the several geographic regions, and at the same time be comprehensive as well as comprehensible, the continental United States is divided into seventeen major water planning districts. Each is comparable to the Tennessee River Valley, but in nearly every case of larger area. Broad, thoughtful outlines of methods of procedure are proposed for each district to replace the present slipshod methods of appropriating public funds. Throughout each plan, forestry, soil conservation, flood control and correction of stream and lake pollution are given special consideration.

The major plan, projected for six years, carries the suggestion that it can be expanded or contracted in accordance with the current economic conditions and needs for employment. To make it effective will not only require specific legislation by Congress and close cooperation between the Federal Government and the appropriate state agencies, but more adequate topographic maps than are now available. With approximately half of the entire area of the continental United States without topographic maps, the committee urges suitable allotments of federal funds for mapping.

Agricultural problems in the drought areas, with special reference to the control and use of ranges and farm land, plans for enlarging the size of farms too small to support a family, and the developing and conservation of water resources are discussed in the plan for the future of the Great Plains.

Ranking high in importance in the consideration of future development of the Great Plains are windbreaks. These, according to the report, "should be planted where water and other conditions are favorable and also where they are needed to protect plants against the desiccating effects of hot, dry winds. Experience has indicated that the yield of crops is increased on fields so protected."

The appendix contains President Roosevelt's letter of instructions to Morris L. Cooke, then Administrator of Rural Electrification, authorizing preparation of the report, the full text of a standard soil conservation districts law to guide the several state legislatures together with summaries of the Taylor Grazing Act and of several important state laws dealing with forestry and grazing.

BRIDGES NAMED TO FOREST COMMISSION

Senator Henry Styles Bridges, of New Hampshire, has been appointed to the National Forest Reservation Commission to succeed Senator Henry W. Keyes of the same State. Senator Bridges comes to the Senate after serving one term as Governor of New Hampshire. In 1921 he was on the extension staff of the University of New Hampshire and later secretary of the New Hampshire Farm Bureau Federation. After graduating from the University of Maine in 1918, he received advanced degrees from Dartmouth College, the University of Maine and the University of New Hampshire. While Governor of New Hampshire he reorganized the Fish and Game Commission, and has consistently encouraged the propagation of wildlife.

Senator Keyes, who preceded Senator Bridges, served actively on the commission from 1921 until the past few months, when he determined to retire to his home in North Haverhill, New Hampshire.

FOREST CONSERVATION CONFERENCE

Representatives of public and private agencies interested in forest conservation have been invited to participate in the Conference on Forest Conservation called by the National Lumber Manufacturers Association shortly after March 1.

The purpose of the conference is to review industry practices in forest conservation and recommend such further developments as seem desirable, and to review public activities and legislation pertaining to forest conservation and recommend needed public action and legislation, with reference particularly to supporting and giving full effect to the program of industry.

The Secretaries of Agriculture and Interior and representatives of the two departments, representatives of the various state forestry departments, along with representatives of public forest agencies and national organizations interested in forest conservation have been invited to meet with the leaders of the forest industry.

NEW MINNESOTA COMMISSION

Drastic changes in the management of conservation in the State of Minnesota, including abolishment of the present five-man commission and legal authority for the governor to appoint a single conservation commissioner, were recommended by Governor Elmer A. Benson in his inaugural address to the Minnesota State Legislature.

Governor Benson also recommended an amendment to the tax law to permit lands on which taxes are delinquent to revert to the State in fee simple rather than to be held in trust for the taxing units as at present.

Calling attention to the fact that Minnesota, a region of streams and lakes, is at the bottom of the ladder in conservation laws, the Governor urged enactment of a law for the operation and maintenance of water control works by the Department of Conservation.

Encouragement of cooperative marketing of the salable timber from the 4,250,000 acres of farm woodlands; aid in the proper management and marketing of woodlot products; the finding of new uses for the different kinds of timber grown on woodlots; and the rehabilitation of farm groves and shelterbelts were also recommended.

SPORTSMEN SPEND $10,000,000

Sportsmen in the United States and Alaska paid nearly $10,000,000 for hunting licenses and federal migratory bird hunting stamps in 1935. They spent $9,256,758 for hunting licenses and $446,919 for the federal stamps.

A total of 5,988,064 resident and non resident licenses were issued in 1935, approximately 70,000 more than in the previous year, when 5,918,045 hunters paid a total of $9,068,881. Sales of the 1935 federal hunting stamp by the Post Office Department were 188,425 less than in the previous year. The 1934 stamp was the first of its kind offered for sale, and 635,344 were sold. Not less than ninety per cent of the proceeds from the stamp sales as provided by law are turned over to the Biological Survey for establishing, maintaining, and administering migratory bird refuges.

Thirty states showed an increase in 1935 over the previous year in the number of licenses sold. Pennsylvania led all states in 1935, both in the number of licenses and in receipts. It issued 614,568 licenses, which yielded $1,274,812. New York sold 559,002 licenses for $1,048,817, Michigan realized $633,156 from 484,588 licenses.

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SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION

TREES

Manual of Trees of North America—Sargent	$ 5.00
Trees of Northern States and Canada—Hough	6.00
Trees of Southeastern States—Coker and Totten	2.00
Pacific Coast Trees—McMinn and Maino	3.50
Trees of North America—The Conifers—Green	2.00
Trees of North America—The Broadleafs—Green	2.00
Northern Rocky Mountain Trees—Kirkwood	2.50
American Trees and Shrubs—Mathews	3.50
Tree Book—Rogers	5.00
Our Native Trees—Keeler	3.00
Trees in Winter—Blakeslee and Jarvis	2.50
Tree Ancestors—Berry	3.00
Tree Flowers of Forest, Park, and Street—Rogers	7.50
Some American Trees—Werthner	5.00
The Redwoods of Coast and Sierra—Shirley	1.25
Identification of Trees and Shrubs—Makins	4.00
Evergreens—Hill	3.50

GENERAL FORESTRY

General Forestry—Brown	$ 3.25
An Outline of General Forestry—Illick	1.50
Forest Education—Graves and Guise	2.50
Profession of Forestry—Read	1.25
Forest Physiography—Bowman	5.00
Forest Law in America—Kinney	2.25

FOREST MANAGEMENT

Forest Management—Recknagel, et al	$ 3.50
Theory and Practice of Silviculture—Baker	5.00
Practice of Silviculture—Hawley	4.00
Manual of Forestry—Hawley and Hawes	3.50
Principles of Handling Woodlands—Graves	2.50
Management of American Forests—Mathews	5.00
Applied Silviculture in the U. S. A.—Westveld	4.00
Forestry in New England—Hawley and Hawes	3.50
Farm Forestry—Ferguson	2.00

MENSURATION AND VALUATION

Manual for Northern Woodsmen—Cary	$ 2.50
Forest Mensuration—Chapman and DeMerritt	3.50
Forest Valuation—Chapman	3.00
Forest Measurement—Belyea	3.50
Forest Mensuration—Bruce and Schumaker	3.50
Forest Finance—Chapman	4.50

WOOD—ITS MANUFACTURE AND USE

American Lumber Industry—Brown	$ 3.00
Forest Products—Brown	4.00
Lumber, Its Manufacture and Distribution—Bryant	4.50
Logging Principles and Practices—Brown	3.50
Logging—Bryant	4.50
Logging Transportation—Brown	4.00
Lumber and Its Uses—Kellogg	4.00
Identification of Economic Woods—Record	2.50
Mechanical Properties of Wood—Garrett	3.50
Identification of Timbers—Brown and Panshin	3.00
The Properties and Uses of Wood—Koehler	3.50

PLANTING OF TREES AND FORESTS

Seeding and Planting—Toumey and Korstian	$ 5.00
Cultivated Evergreens—Bailey	3.50
Roadsides—Bennett	3.00

FOREST PESTS

Principles of Forest Entomology—Graham	$ 3.50
Outline of Forest Pathology—Hubert	6.00
Insects and Diseases—Felt and Rankin	5.00
Diseases of Cultivated Trees and Plants—Massee	4.00
Forest Insects—Doane, et al	4.50
Our Enemy, the Termite—Snyder	3.00

NATIONAL FORESTS

History of Forest Service—Smith	$ 3.00
Our National Forests—Boerker	2.50
United States Forest Policy—Ise	5.10
Rangers of the Shield—Edited by Butler	1.50

NATIONAL PARKS

Book of the National Parks—Yard	$ 3.00
Grand Canyon Country—Tillotson and Taylor	2.00
Wilderness of Denali (McKinley Park)—Sheldon	6.00
One Hundred Years in Yosemite—Russell	3.50
Trees of Yosemite—Tresidder	2.00
Animal Life in Yellowstone—Bailey	4.00

CAMPING AND RECREATION

Camp Cookery—Kephart	$ 2.50
Camping and Woodcraft—Kephart	2.50
Campers' Handbook—Wallace	2.00
Handbook for Rangers and Woodsmen—Taylor	3.00
The Real Log Cabin—Aldrich	2.50

BIRDS, WILDLIFE, FISHING AND HUNTING

Handbook of Birds of North America—Chapman	$ 5.00
The Bird Book—Blanchen	2.95
Birds of the Pacific Coast—Eliot	3.50
Bobwhite Quail—Stoddard	6.00
Game Management—Leopold	5.00
Western Bird Guide—Reed	1.75
Field Book of Wild Birds—Mathews	3.50
American Waterfowl—Phillips and Lincoln	4.50
Bird Portraits in Color—Roberts	3.50
American Fishes—Goode	6.00
Taking Trout with a Dry Fly—Camp	2.00
The Modern Angler—Knight	2.75
Fly Dressing—Bernard	2.50
The Reptiles of North America—Ditmars	6.75

FLOWERS AND GARDENING

American Wild Flowers—Mathews	$ 3.50
Wild Flowers—House	3.95
Field Book of Western Wild Flowers—Armstrong	3.50
Western Flower Guide—Saunders	3.50
Hardy Californians—Rowntree	3.50
Flora of the Hawaiian Islands—Degener	7.00
Ferns of Northeastern United States—Wiley	1.00
Field Book of Common Ferns—Durand	2.50
The Mushroom Handbook—Krieger	3.50

MISCELLANEOUS

American Conservation—Edited by Butler	$ 2.50
Our Natural Resources—Parkins and Others	5.00
Conservation—Havemeyer and Van Hise	5.50
Our Federal Lands—Yard	3.00
Green Laurels—Peattie	3.75
Through the Woods—Bates	3.00

This list of Selected Books is a service of The American Forestry Association to its members. . . . A more complete list of recommended books is available on request. Members ordering books through the Association are entitled to a 10% discount from published prices

NEW BOOKS

AUDUBON, by Constance Rourke. Published by Harcourt, Brace and Company. 342 pages with sketches and twelve reproductions in color of Audubon's birds. Price, $3.00.

In this new biography of the artist naturalist, Jean Jacques Audubon, the author brings into focus with clarity and authenticity the romance and adventure, the dangers and defeats of a genius who loved our country when the republic was young. Audubon was a character of amazing patience and perseverance in a vast, dis jointed world.

Constance Rourke has written a story with the same fidelity to detail and background that Audubon gave to his birds and with similar care for design and balance in the entire composition.

The charm of the man who inspired love and loyalty in his beloved Lucy, as well as in the cultured friends whom he found along great waterways through the wilderness of America, is not hidden by either the enthusiasm or the detachment of the artist whose art was engendered by a passionate desire to preserve in imperishable form the wonders of bird and animal life of a new continent. Woven through the book is the romance of those sure travel routes of early America—the Delaware, the Ohio, the Mississippi, and the Indian Rivers.

Contained within the book are twelve carefully chosen color reproductions of Audubon's plates. It is a book not to borrow, but to own.—J. C. C.

HILL'S BOOK OF EVERGREENS, by L. L. Kumlien. Published by the D. Hill Nursery Company, Dundee, Illinois. 304 pages. Illustrated. Price, $3.50.

Trees as companions and sources of beauty around the home and in the garden are discussed in "Hill's Book of Evergreens," by L. L. Kumlien. This beautifully illustrated book describes the growing and care of evergreen trees, offers help for their identification, and suggests ways for their effective use.

With the experience of a great nursery to draw upon, the author discusses the planting of trees, their feeding, pruning, and care, and presents technical information in a highly readable manner. The last half of the book is given over to descriptions of the major conifers and their horticultural sub-species. Numerous color plates supplement excellent halftones and sketches.—G. H. C.

HIGH TRAILS OF GLACIER NATIONAL PARK, by Margaret Thompson. Published by the Caxton Printers, Ltd., Caldwell, Idaho. 176 pages. Illustrated. Price $3.00.

If you have often wished to see Glacier National Park, then draw up your chair to the fireside with a copy of "High Trails of Glacier National Park" on your knee and travel! All the glories of the Montana Rockies with their glistening white glaciers and sapphire lakes will form your setting, while the author leads you along winding trails through green valleys and up flower-decked mountains to gorgeous panoramic views at their crest. The photographic reproductions and color plates will do their part to help you visualize more clearly the majestic scenic beauty.

Miss Thompson knows her subject so well that anyone contemplating a visit to the park should read her book first and be guided by her personal experiences. The interesting Indian legends and historical accounts will make one enthusiastic to reach these high trails.

This book will also appeal to those who have seen the splendor of Glacier National Park, for it will help keep memories fresh and renew forgotten incidents of adventure amid the loveliness of this region.—D. D.

WILLIAM WILLARD ASHE, by William A. Dayton. U. S. Forest Service publication.

A brief and sympathetic biography of the late William Willard Ashe has been prepared by William A. Dayton, senior forest ecologist, United States Forest Service, and is available upon request. The voluminous writings of Mr. Ashe, who was secretary of the National Forest Reservation Commission at the time of his death in 1932, and a list of the 510 plant species and varieties to which Mr. Ashe gave new botanical names are included. The pamphlet is a record of remarkable achievement in the field of science and public service.—G. H. C.

THE COLORADO FORESTER FOR 1936. Published annually by the Forestry Club of the Department of Forestry at Colorado State College, Fort Collins, Colorado. 96 pp., ills.

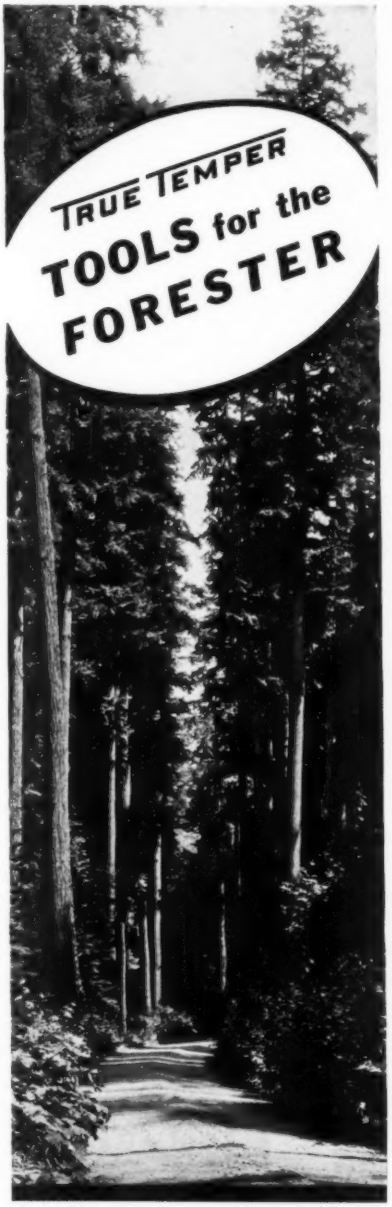
This publication breaks away very successfully from the usual type of college annual, for it is devoted to one theme—the United States Forest Service—dedicated to Ferdinand Silcox, chief of that bureau and, through him, to the entire organization which he heads. Each Regional Forester has contributed an article to the magazine, giving the highlights of his particular forest area, and so is presented a composite, national picture—up to the minute, of vital interest to all foresters. It is bound to be helpful to the profession at large as well as of great interest to the student body of the college.

THE LIVING GARDEN. By E. J. Salisbury. Published by the Macmillan Company, 60 Fifth Avenue, New York City. 338 pages. Illustrated. Price, $3.00.

Within the pages of "The Living Garden," which has been awarded the Veitch Memorial Gold Medal of the Royal Horticultural Society of England, Dr. Salisbury discusses the subject of plant life from the embryo stage to maturity. Under his scientific guidance, the green garden world becomes a fascinating place in which to work. His discussions of the characteristics of the soil and the possibilities of its exploitation and improvement, together with chapters on the effects of sunlight and shade, air and water, warmth and cold, etc., open up a new field of thought to the practical gardener.

Dr. Salisbury does not attempt to discuss the arrangement of a garden, nor what should be planted therein; rather he endeavors to delve beneath the exterior and explain in non-technical language the fundamental principles of growing plants.

The book is interesting, constructive, and comprehensive, and the matter-of-fact information it contains will serve as a resourceful foundation for the planning and maintenance of an effective garden.—D. D.



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BULLGRADER TRACTORS

Modern simplicity of design together with unusually fast and powerful hydraulic blade action are outstanding features of the bullgrader and bulldozer, the two first units in the Bucyrus-Erie Company's new tractor equipment line.

According to the manufacturer, these units have already set new dirt-moving performance standards on widely varied jobs, such as in grading highways, constructing logging roads, and working on large dam projects, and in winter the bullgrader is an efficient snow removal unit.

The name "Bullgrader" is exclusive with this company and as the term implies, it designates the double-purpose unit which can be used both for grading and for bulldozing. The bullgrader blade may be angled quickly to the right or left for continuous side-casting, or it may be set straight across for bulldozing. The blade may also be tilted for filling, terracing or establishing a grade.

COAL TAR BANDS

The Pennsylvania Department of Forests and Waters has issued a caution against the use of coal-tar bands on young trees to catch caterpillars. The warning was issued after a number of specimens had been received by the department's bureau of research which indicated that trees had been killed from chemical poisons contained in coal tar.

The bark of young trees is easily penetrated by the chemicals in coal tar, the Department points out, and once "girdled," the trees all too frequently die. The use of some sticky non-toxic substance on tree trunks to trap crawling insects is urged. Coal-tar bands may not kill large trees when the outer dead bark is thick.

STABILIZED ROADS

A network of over 70,000 miles of roads throughout the National Forests plays an important part in the fire protection work of the Forest Service. Light traffic justifies only a low-cost soil type road, but the economic value of the forests necessitates that these roads be kept passable at all times.

Most of the roads now in use are of the sand-clay or gravel-sand-clay type. Unfortunately, however, such materials as found in nature are generally unsuited to withstand weathering and erosion.

In a search for a cheap but more serviceable road, the Forest Service has been conducting a series of experiments with soil road stabilization on the Cherokee National Forest, near Gainesville, Georgia. The experiment includes scientifically selected and graded sand-clay and gravel-sand-clay surfacing, with and without chemical admixtures.

The effect of calcium chloride used as an admixture in preserving the stability of the road surface was soon evident. The untreated sections were becoming dusty and rough and there was evidence of appreciable material loss. The chemically treated sections, on the contrary, were smooth and dustless and contained no loose material. The calcium-chloride-stabilized surfaces are found to be quite impervious to rains and rutting, and their high resistance to disintegration effects considerable savings in upkeep and depreciation.

HEAVY DUTY TRACTORS

The Linn Manufacturing Corporation have announced two additions to their standard line of tractors. In one model the body capacity has been increased to 12-15 yards. To compensate for this extra capacity, all body and chassis parts have been proportionately strengthened. The fundamental design features, however, have been retained. These include the flexible traction unit for positive footing; extra wide end dump bodies, with dumping angle of fifty degrees, and automatic down-fold tailgates and high speed forward and reverse driving. Power is supplied by the Hercules gasoline engine, with Diesel motor optional.

The other new unit is a combination tractor trailer with body capacity of 25-30 yards, and is offered for haulage jobs where huge capacities are essential . . . or for loggers hauling long length logs. This model employs the standard tractor chassis, with specially designed trailer unit. The trailer body is two-way dumping, with heavy-duty underbody hoists and automatic down-fold side gates. Dumping angle is fifty degrees.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., will be Answered in this Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: I am sending you a package of leaves and twigs from a tree which grows around Phoenix. It is a lovely shade tree but very short lived. At about thirty years it begins to die at the top and within four or five years the grandest old trees are deader than Julius Caesar. Please tell me its scientific name and why it dies in its early youth.—W. C. B., Arizona.

ANSWER: The tree was identified as an ash—*Fraxinus velutina* var. *toumeyi*.

According to Professor J. G. Brown, of the University of Arizona, the ash and other shade trees in Phoenix were reasonably prosperous until about 1924-25. "About that time," he writes, "in order to lower the water table, which had reached a level within sixteen inches of the surface in the lower parts of the Salt River Valley, pumps were installed. The operation of the pumps greatly lowered the water table. Trees were now left with their roots suspended in dry soil. Had the owners of the trees realized the situation and irrigated the trees, the latter might have escaped unscathed. As it was, many trees were killed and a larger number were ininjured severely."

QUESTION: As an admirer of your magazine, I wish to protest against your ad for the Ever-Set Trap Company in its campaign against sparrows. I enjoy feeding the sparrows and do not believe they should be exterminated because they eat a few cherries as robins do or a little grain as pheasants do. Won't you stop aiding the extermination of my friends the sparrows? —R. L. N., Oregon.

ANSWER: The use of such traps has been discussed with an ornithologist in the Biological Survey. He assures me that there is much to commend the use of live traps which in no way injure the birds and permit one to sort out English sparrows or other more or less objectionable birds and destroy them, while releasing the desired species. There are many areas where English sparrows have become so numerous as to be detrimental to the other bird life and sometimes a menace to crops. Frequently, property owners find their efforts to encourage song birds thwarted by increasing numbers of English sparrows which take the feed and otherwise discourage the presence of the desired birds.

English sparrows can hardly be exterminated, but their numbers can be reduced on a property or in a general locality by trapping. Certainly it is more satisfactory to use a trap to catch birds alive than for one to attempt to shoot the sparrows. In so doing there is always grave danger that the marksman may be inaccurate or his eye may not distinguish the different species, with the result that he will kill a tit-mouse, a song sparrow, or some other desirable bird.

QUESTION: Please suggest four or five representative books on trees and forestry which would be of special value to a municipality.—C. W., New York.

ANSWER: "Handbook of Trees of Northern States and Canada," by Romeyn B. Hough, published by the Romeyn B. Hough Company, Lowville, New York, price $8.00; "Some American Trees," by William B. Werthner, published by the Macmillan Company, price $5.00; "Illustrated Manual of Pacific Coast Trees," by Howard E. McMinn and Evelyn Maino, published by the University of California Press, Berkeley, California, price $3.00; "Roadside Development," by J. M. Bennett, published by the Macmillan Company, price $5.00; "Roadsides—The Front Yard of the Nation," by J. M. Bennett, published by the Stratford Company, 289 Congress Street, Boston, Massachusetts, price $3.00; "Practice of Silviculture," by R. C. Hawley, published by John Wiley and Sons, Inc., New York, price $4.00; "Insects and Diseases of Ornamental Trees and Shrubs," by E. P. Felt and W. H. Rankin, published by the Macmillan Company, price $5.00.

QUESTION: Is it true that when fungus growth starts on a tree, the tree will begin to decay and there is practically no way to stop it? I have two very large beeches on my place that had large white fungus growths on them this year. I took off the growths, and would like to know if there is anything else I can do to the trees to preserve them.—W. H. W., Ohio.

ANSWER: The only way to stop the action of the fungus is to dig out all of the decayed wood and treat the remaining wood in the tree with a fungicide. This should be done by a reliable and competent arborist or tree surgeon who would first advise whether or not the disease in these particular trees is susceptible to control.

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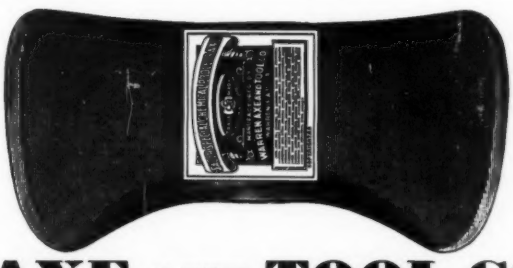

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FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

Plans for governmental reorganization go forward. A Joint Congressional Committee, consisting of nine members from each house, has been created to deal with the program recommended by President Roosevelt as set forth by his Committee on Administrative Management of the Government. The committee will hold hearings, and draft legislation for consideration by Congress.

Senators appointed to the committee include Joseph T. Robinson of Arkansas, Chairman, with James F. Byrnes of South Carolina, Harry F. Byrd of Virginia, Joseph C. O'Mahoney of Wyoming, Alben W. Barkley of Kentucky, Pat Harrison of Mississippi, Charles L. McNary of Oregon, John G. Townsend, Jr., of Delaware, and Robert M. LaFollette of Wisconsin. Senator Norris was originally named, but declined the appointment because of pressure of other duties. The House committee, of which Representative James P. Buchanan of Texas is chairman, consists of John J. Cochran of Missouri, Lindsay C. Warren of North Carolina, Fred M. Vinson of Kentucky, J. Will Robinson of Utah, James M. Mead of New York, Frank C. Kniffen of Ohio, John Taber of New York, and Charles L. Gifford of Massachusetts.

This Joint Committee held its first meeting on February 6 and agreed that the Senate and House groups would alternate in the choice of chairmen. Senator Robinson will serve until the beginning of the next session of Congress, when the House group will name the chairman. The Joint Committee includes all members of Senator Byrd's Special Committee on Governmental Reorganization, but is not epected to interfere with consideration of government reorganization by the latter, whose studies have been in progress during the past year. No date has been set for hearings by the Joint Committee.

The First Deficiency Appropriation bill (H. R. 3587) as signed by the President on February 9 carries a total of $933,000,000 of which $789,000,000 is for work relief during the next five months, $95,000,000 for continuing the CCC from March 31 when the work legally expires, to June 30, and $2,045,000 for fighting and preventing forest fires during the current fiscal year. Of the sum appropriated for relief, substantial amounts will be available for emergency forest insect and disease control.

The appropriation for CCC work for the first nine months of the present fiscal year was $308,000,000. The new appropriation will bring the total cost of continuing the present authorized enrollment of 350,000 men for the full year to $407,000,000. This contemplates maintaining approximately 2,000 camps. Nothing has been done toward making the CCC permanent, except that H. R. 1500, introduced by Representative Doxie of Mississippi on January 5, was augmented on February 8 by a similar bill, H. R. 4481, by Representative Citron of Connecticut. Both have been referred to the Committee on Labor.

The recent fire season was characterized as one of the most serious and longest in the history of the National Forests, with 16,530 fires. This was nearly twice as many as the average of the past five years. They burned a total of 442,538 acres, and destroyed forest values estimated at $816,802.

The Agricultural Appropriation bill, which includes appropriations for the Forest Service, the Soil Conservation Service, the Biological Survey, the Bureau of Entomology and Plant Quarantine, and the Bureau of Plant Industry, will be considered by a subcommittee of the House Committee on Appropriations under Chairman Clarence Cannon of Missouri. Members named to this committee are Malcolm C. Tarver of Georgia, William B. Umstead of North Carolina, William R. Thom of Ohio, Charles H. Leavy of Washington, William P. Lambertson of Kansas, and Everett M. Dirksen of Illinois. Hearings started late in February and will continue into March.

Appropriations for the National Park Service, the Division of Grazing, and the forest work of the Bureau of Indian Affairs are included in the bill for the Department of the Interior. The House subcommittee to consider this bill is under the chairmanship of Representative Edward T. Taylor of Colorado, and includes Jed Johnson of Oklahoma, James G. Scrugham of Nevada, James N. Fitzpatrick of New York, Emmet O'Neal of Kentucky, William P. Lambertson of Kansas, and Robert Rich of Pennsylvania. No hearings are scheduled before March.

The flood situation which Senator Robinson described as "of pressing necessity and value" has resulted in the introduction of numerous bills, including companion bills by Senator Bulkley and Representative Secrest of Ohio—S. 1230 and H. R. 3686. These bills, which would create an Ohio River Valley Authority comparable to the TVA, except that no control of power development would be authorized, were reported on February 8 by Senator Bulkley to express views on flood control "in line" with those of the President.

Provision is included in the OVA bills for the acquisition of lands to be used for cultivating timber and protecting wildlife, as well as for other activities designed to control floods in the valley. An initial authorization of $150,000,000 is set up to start a program of land acquisition, dam construction, and reforestation which may ultimately cost $2,000,000,000. The work would be administered by a three-man directorate to be chosen by the President. These and other bills on flood control have been referred to the Committee on Flood Control. They are scheduled for early consideration but will probably wait recommendation by the President following the report of the special Flood Committee headed by Works Progress Administrator Harry L. Hopkins, now in the flooded area. They are expected to be coordinated with the President's $2,771,000,000 water conservation program.

CONSERVATION CALENDAR

Important bills in Congress with action from January 15 to February 20

APPROPRIATIONS

H. R. 3587—BUCHANAN—First Deficiency Appropriation bill. January 25, 1937. Passed House January 26. Passed Senate with amendments February 3. Signed by the President, February 9, 1937. Public Law No. 4.

GOVERNMENTAL FUNCTIONS

H. J. Res. 81—BUCHANAN—To establish a Joint Committee on Governmental Organization composed of seven House members. January 6, 1937. Passed House January 14. Passed Senate amended so as to include nine members from the Senate January 29. House disagreed and offered an amendment whereby the House would also have nine members February 1. Approved by the Senate February 1. Signed by the Speaker and Vice-President February 2. Signed by the President February 3. Public Resolution No. 4.

FORESTRY

S. 1504—NORRIS (H. R. 4728—DOXEY)—To authorize cooperation in the development of farm forestry in the States and Territories, and for other purposes. February 15, 1937. Referred to the Committee on Agriculture and Forestry.

NATIONAL PARKS

H. R. 2014—WILCOX—To amend the Everglades National Park Act. January 6, 1937. Referred to Committee on Public Lands.

H. R. 4724—WALLGREN.—To establish the Mount Olympus National Park in Washington. February 15, 1937. Referred to the Committee on Public Lands.

SOIL CONSERVATION

S. 1304—GILLETTE (H. R. 4410—MAVERICK)—To provide for survey and classification of the soil resources of the United States; to provide for a system of soil conservation, etc. February 2, 1937. Referred to the Committee on Agriculture and Forestry.

TREE DISEASES—INSECTS

S. J. Res. 31—WHEELER (H. J. Res. 151—CLARK, Idaho; S. J. Res. 75—GILLETTE; H. R. 3695 — ENGLEBRIGHT) — Making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases. January 12, 1937. Referred to the Committee on Agriculture and Forestry. Report No. 110 on S. J. Res. 75, February 20.

H. J. Res. 168—LEA—To appropriate an additional $50,000 for investigation and surveys of forest insects in California. January 28, 1937. Referred to the Committee on Appropriations.

WATER AND STREAM CONTROL

S. J. Res. 57—MRS. CARAWAY (H. J. Res. 175—MCCLELLAN)—To authorize submission to Congress of a comprehensive national plan for the prevention and control of floods of all the major rivers of the United States, etc. January 30, 1937. Referred to Committee on Commerce.

S. 534—WHEELER—Granting consent to Montana and Wyoming to negotiate and enter into a compact for division of the waters of the Yellowstone River. January 8, 1937. Reported without amendment (Rept. 42) from Committee on Indian Affairs, February 8. Passed Senate February 10.

S. 702—BARKLEY (H. R. 2711—VINSON)—To create a Division of Water Pollution Control in the United States Public Health Service. January 12, 1937. Referred to the Committee on Commerce.

S. 1173—COPELAND (S. 1289—DAVIS)—To amend the Flood Control Act of June 22, 1936. January 27, 1937. Referred to Committee on Commerce. Reported without amendment (Rept. No. 83) February 11, 1937.

S. 1230—BULKLEY (H. R. 3686—SECREST)—Control of the flood waters of the Ohio River and its tributaries, for the improvement of navigability of such rivers, for reforestation and conservation of natural resources, etc. January 29, 1937. Referred to Committee on Commerce.

S. 1440—BARKLEY and BULKLEY (H. R. 4603—SECREST)—To provide for the control of the flood waters of the rivers of the United States, for the improvement of navigability of such rivers, for reforestation and conservation of natural resources. February 10, 1937. Referred to the Committee on Commerce.

H. R. 3788—KVALE (H. R. 4347—WITHROW)—To improve the navigability and to provide for the flood control of the upper Mississippi River; to provide for reforestation and use of marginal lands, etc. January 27, 1937. Referred to the Committee on Flood Control.

H. R. 4208—PARSONS—To provide for a permanent system of flood control and for other purposes. February 2, 1937. Referred to the Committee on Flood Control.

H. R. 4210—DUNN—To provide $2,500,000,000 for flood control. February 2, 1937. Referred to Committee on Appropriations.

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New Trees Through Hybridization and Breeding

The Northeastern Forest Experiment Station at New Haven, Connecticut, is starting a project in forest tree breeding directed toward the development of improved trees for reforestation purposes, according to Dr. Ernst J. Schreiner, associate conservationist at the Station. Speaking before the Plant Science Club at Yale University recently, Dr. Schreiner said that new forest types will be developed through hybridization and breeding along the same lines as in agricultural and horticultural plants.

"Although hybridization and breeding have been carried on for centuries with agricultural plants, comparatively little has been done with forest trees," he explained. "Our present day agricultural plants are so highly developed that it is often impossible to be certain of their ancestry and in some cases the wild progenitors have never been recognized.

"In the light of the tremendous strides in the breeding of our agricultural plants within the last fifteen to twenty years, it is rather surprising that more work has not been started with forest trees. One of the chief obstacles has been the general belief that the breeding of trees is a long-time proposition. Compared to the improvement of annual crops this is partly true; it will take somewhat longer to obtain results with forest trees than with such annuals as wheat or corn. However, there are several short cuts possible to the ultimate goal of the forest tree breeder. Multiplication of a new type by vegetative propagation methods, such as the rooting of pieces of stemwood in willow and poplars, permits immediate utilization of exceptional plants as soon as they are produced. In recent years it has been found that a duplication of the hereditary units in any one individual often results in new types, more vigorous in growth than the parent forms. Such plants may also breed true, making it possible to utilize immediately the seed of a new and fixed type.

"Through hybridization and breeding it is possible to combine the excellent qualities of several individual parent trees in one individual offspring. It is also possible to obtain entirely new types through new combinations of the hereditary units of the parent stocks. Such an ideal tree might be visualized in the possibilities with walnuts. It is entirely possible that a hybrid individual can be produced, which would combine the thin shell of the English walnut with the high flavor of the native black walnut. Breeding might be so directed that the new type would also possess rapid growth and inherently excellent wood quality.

"It is suspected that curly grain in walnut is an inherent characteristic, and if this is the case, the new type might inherently possess this quality. By well directed breeding the profitable range of such a hybrid could be extended northward into New England. We would then have a tree with the following qualifications: Very rapid growth (some walnut hybrids have been known to grow almost an inch a year in diameter), large thin-shelled nuts of excellent quality which would begin to bring in an annual income from the woodlot at the end of the seventh or eighth year, and finally after thirty to forty years, lumber of the highest quality — curly walnut. With such improved trees reforestation would no longer be a problem.

"In order to serve the region as a whole many new types of trees must be developed. There will never be any one tree which will be suitable for planting in all parts of the region or on all soils. Such diversification of planting stock is also desirable from an economic standpoint."

Breeding work at the Northeastern Forest Experiment Station will be directed toward the development of forest trees of increased vigor of growth, higher resistance to disease and insects, and better wood quality, Dr. Schreiner said.

"The great possibilities in this new field of forest endeavor, which may be called 'creative forestry,' are illustrated in the project which was successfully carried out by the Oxford Paper Company, of Rumford, Maine, in cooperation with the New York Botanical Garden. The objective was the production of a very rapid growing hybrid poplar for pulpwood reforestation in Maine. About 13,000 hybrids were obtained between many species and varieties of poplars, and many of the hybrid individuals showed very vigorous growth; certain hybrids grew much more rapidly than either of their parents. Such hybrids also showed increased hardiness to the winter conditions in Maine, increased resistance to disease, and straighter and less branching growth habit."

MARCH

By Ethel Romig Fuller

Now is the month of lovely quickenings—
First snowdrops flower in a fringe of drifts;
The fields, harp-wise, are strung with gradient strings
Of brooks; a golden cloud of pollen sifts
From tasseled alders to the ebon mould
Where suddenly a green awareness stirs.
The willows walk in ermine. Swamps are scrolled
With rosy pencilings of osiers.

Frogs strum their mandolins again. The dove
And pheasant variously talk of love.
Lambs snow the meadows; downy ducklings follow
The path of instinct to a limpid pond.
If yet there's frost to north of every hollow,
Spring's white on each slim service-berry frond.

DUTCH ELM DISEASE CONFERENCE

Public support for continuing the campaign to eradicate Dutch elm disease will be discussed at a meeting of the National Conference on Dutch Elm Disease at the Mayflower Hotel, Washington, D. C., March 4. The program will include reports on the progress of the work in New York, New Jersey, and Connecticut, where the disease is now largely concentrated.

CONSERVATION AT THE FORKS

(*Continued from page* 110)

and the Bureau of Fisheries. Instead of reducing the number of conservation agencies, it would appear to multiply them and to add to an already jumbled situation resulting from a multiplicity of overlapping agencies. For one who has observed closely the government's work in conservation for the past twenty years, it has all the earmarks of a breeder of more bureaus, more inter-bureau warfare and more stymied conservation. And this means more costly, less efficient and more chaotic organization than already exists.

Furthermore, the principle of making land ownership the organizing guide for conservation throws confusion into the whole agricultural picture. In the West, sixty per cent of the livestock range is public lands. Its administration would be under the proposed Department of Conservation. The remaining forty per cent is private land and on that conservation of forage and soil would be the concern of the Department of Agriculture. The western livestock industry is built upon grazing stock on both public and private lands—the former in summer, the latter in winter. In dealing with this phase of western agriculture, therefore, the government would have to function through two separate departments—an illogical, ponderous arrangement that divides authority and promises to be disruptive of unified conservation in aid of agriculture.

It is quite possible in fact that this division in the course of time would drive a wedge into the Department of Agriculture, splitting the solidarity of its program. With western agriculture preponderantly interwoven and concerned with the public ranges, which would be under jurisdiction of another department, there is real danger that the Secretary of Agriculture might find his hands tied in dealing with those western soil resources that form integral parts of the agricultural problem. Certainly experience proves that differences in departmental policies and viewpoints grow out of divided authority and invariably tend to check and sometimes stalemate the execution of large land conservation programs.

An analogous situation is presented in the case of forests. The present program looking to sustained yield management of forest lands involves blocking up public and private tracts susceptible to permanent management. But under the President's plan the lands publicly owned would be under jurisdiction of the Department of Conservation while authority to deal with the private lands would rest with the Department of Agriculture. Here again administration would be double headed, not only in shaping policies but in dealing with the industry and the public. It clearly would render cooperation of the various interests involved unnecessarily cumbersome.

Similar examples of the dubious working of the artificial principle of fixing federal responsibility on a land title basis might be cited. They merely add confusion to the picture and evidence against the soundness of the principle. They leave conservation research, vital to the solution of conservation problems, as stepchildren in a division of bureaus. And to those who have hoped that reorganization would prove a cure for conservation's present ills they give a sense of concern and disappointment that the President's Committee and the President himself have accepted this principle.

It is suggested that a more tenable approach to the problem would give consideration to the nature of the various natural resources with which the government is concerned and the part they play in the objective work of different departments. It would seem more logical, for example, to fix responsibility for the protection and development of a given resource in the department where it is a major factor in the department's integrated field of work, than to divide responsibility according to who owns the soil where it occurs. That done, functional organization becomes simply a matter of providing machinery for proper coordination of departmental programs of conservation. Approaching the problem on this basis would avoid what the President and his Committee apparently now propose to do; namely, to pull conservation teeth from various departments in order to make an artificial set for an old member of the departmental family.

Natural resources readily lend themselves to the approach suggested. They are of two broad classes—those organic and renewable, such as plants, animals and birds, and those inorganic and non-renewable such as coal, oil, silver and gold. Conservation of the latter or non-renewable group is limited to protection in place and to provident use by the application of the most enlightened chemical and engineering methods. The highest form of federal stewardship over them should find its fulfillment in the department whose major purpose is to promote engineering and geological science.

The renewable resources on the other hand are living organisms dependent upon the soil for food, water and environment. They are vital links in the cycle of matter upon which all life depends—man's included. They are subject to man's control, reproduction and increase in the degree to which he understands their laws of growth and their biological relationship to one another and to human life. Their conservation calls not only for their protection but for scientific knowledge and ability to make more productive this creative relationship between the soil and plant and animal life. This in turn calls for placement in a department competent at its source and through its branches to deal with plants and animals in relation to one another, their adaptability to our different soils and their respective places in our national land economy.

This was the principle followed by Theodore Roosevelt. Can fulfillment of conservation's larger purpose from now on be better accomplished at less cost to the people by abandoning this principle and dividing responsibility on a public land-private land basis? Congress and the people should give thoughtful study to the question before answering.

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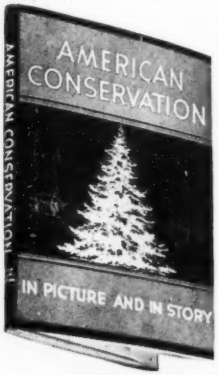

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PINE BEETLE LOGGING COMPANY

(*Continued from page* 123)

to extend their boring into the inner bark and cambium layer, where they make winding tunnels which cut the sap flow channels. With a thousand or more members of the company cutting similar tunnels in other portions of the bark, the tree is quickly girdled—the needles fade to a light green color, then straw yellow, later orange and reddish brown, and within two to four weeks the tree is dead.

Once the tree has been successfully overcome, the beetles proceed with their principal business—raising a large and active family to carry on the company's enterprise. This is not only a closely knit organization but a family affair.

As each pair of beetles constructs its tunnel in the inner bark, the female deposits numerous eggs in niches along the side walls, carefully packed in sawdust. If the pair find their quarters cramped or if they dislike their surroundings, they may leave and search for additional egg-laying space in another tree. Once the female has deposited her full quota of eggs, she dies at the end of the bark tunnel. From the eggs hatch small white larvae or grubs. These feed for a time on sugars found in the inner bark and then feed upon the outer bark, where they complete their larval growth and development. When full grown, the larvae are small, white, curled grubs about the size of a grain of rice. They may be found by chopping half way through the bark of an infested tree. At full growth, the larvae transform to the pupae or resting stage, and thence to the adult hard-shelled beetle. When fully formed, the beetle leaves its ancestral home to fly afield in search for a mate and new trees to conquer—all for the good of its race and the glory of the Pine Beetle Logging Company.

Their powers of increase are tremendous and if not restrained by natural or artificial checks, would soon wipe out our mature pine forests and their food supply. Fortunately for them as well as ourselves, natural checks and balances tend to keep them under control. Natural enemies, such as birds, predaceous and parasitic insects, and disease reduce their numbers. Periods of extreme sub-zero weather freeze large numbers, even though protected by layers of bark, and the trees themselves often offer such resistance to attack that large numbers succumb in a futile struggle to find a satisfactory home. In spite of these handicaps, they sometimes increase their activities by as much as 400 per cent in a single season, and the consequent loss of timber goes up by leaps and bounds.

When natural enemies fail to hold them in check, it becomes necessary to apply artificial methods of control if disastrous timber losses are to be avoided. So far the only control methods consist of felling the infested trees and burning, sun-curing, or spraying oil on the bark harboring the beetle broods. This is laborious and expensive, since "spotting crews" have to search through thousands of acres of affected area to locate the beetle infested trees. "Treating crews" follow their map directions, relocate the infested trees, fell them and dispose of the bark. Where the area is close to a logging operation, commercial logs from the infested trees are salvaged and sent to the mill. Usually, however, the infested areas are so inaccessible that it is unprofitable to utilize the beetle-killed timber.

During the past eight years, pine timber owners of Oregon have spent $167,048 in combatting the ravages of this pest on their holdings. The United States Forest Service and Indian Service have been similarly engaged, but the efforts have been so small in comparison with the destruction caused by these pests that results have been negligible. Since the advent of the CCC considerable labor has been used in fighting the beetles on federal and private lands. While this has reduced losses and saved some timber, such results are only temporary. The work must be increased tenfold and repeated from year to year whenever the beetles approach an epidemic stage.

The great present need is not only ample federal funds to combat outbreaks of the beetles, but increased funds for the scientific bureau of the Federal Government to develop more effective, less expensive and more lasting methods of control. Up to the present time little progress has been made because of the limited attention to the beetle problem and the inadequate research facilities provided by the government. The problem threatens the possibility of sustained yield forest management in the western pine region and deserves increased study and attention.

DOOM OF THE GREAT LAKES FISHERIES

(*Continued from page* 105)

United States Bureau of Fisheries began an extensive investigation of the commercial fisheries of Lake Erie to determine what measures should be taken to restore the commercially exterminated cisco and to halt the depletion of other species of fish. This investigation continued for five years and led to the recommendation of certain regulatory measures.

On October 12, 1931, Henry Morgenthau, Jr., then Conservation Commissioner of New York, called a conference on the Lake Erie fisheries at Buffalo, New York. Among other things, this conference provided for the establishment of the Lake Erie Advisory Committee, composed of representatives from each of the four States fronting Lake Erie, the Province of Ontario, and the United States Bureau of Fisheries. The first meeting of this committee was held at Buffalo, New York, June 22, 1932.

At its second meeting, held at Toronto, Canada, on December 2, 1932, the committee recommended the adoption of eight important regulations. Later five of these were incorporated in the so-called Toronto Agreement, which was signed by the Conservation Directors of the Province of Ontario and the various States concerned and which became effective April 24, 1933. In the fall of 1933 New York found it impossible, largely because of political pressure, to enforce the agreed-upon regulation on the closed season. This failure of New York resulted in a similar violation of the Agreement by the other signatories. In 1934 Ohio violated one of

the assumptions on which the Toronto Agreement was based by officially sanctioning the use of gill net mesh less than three inches in length. Because of Ohio's refusal to withdraw at once its approval of the use of such illegal nets, New York permitted the resumption of the use of the very destructive bull net which had been abolished by the Agreement and for the second time extended the fishing season beyond the date fixed in the Agreement. These continued violations finally resulted in the complete abrogation of the Toronto Agreement and the dissolution of the Lake Erie Advisory Committee. Thus, the first formal contract ever signed by a group of Great Lakes States and the Province of Ontario to provide uniform regulation of the commercial fisheries ended in failure.

The possibility of obtaining uniform regulations on Lake Erie is considered so remote that the conservation departments of the various States concerned have appealed to the Federal Government to take over the control of the fisheries. The same sentiments were expressed by the Lake Erie Advisory Committee at its last meeting when it adopted unanimously the following motion:

"That the various states bordering on Lake Erie petition Congress to vest the United States Department of Commerce with authority to promulgate rules and regulations governing the taking of fish from Lake Erie for commercial purposes; and that the Federal Government of the United States negotiate a treaty with the Dominion of Canada to the end that like regulations may be adopted in the waters of Lake Erie fronting the Province of Ontario; and that the states enact such legislation as is necessary to authorize the conservation commissioners of the different states bordering on Lake Erie to adopt rules and regulations adjusting state laws in relation to such fisheries to conform thereto."

Divided control has prevented the enactment of proper regulations not only on Lake Erie but also on the other Great Lakes and has in many instances created conditions of unfair competition and discrimination between the fishermen of different states and of the two nations involved. For example, in the fall of 1935 Michigan was required by law to enforce a closed season on the chubs of Lake Huron, thus compelling the Michigan chub fishermen to discontinue their operations for a period of six weeks. The Canadian fishermen, however, were not subjected to a closed season and continued to take the fish protected by Michigan laws.

Michigan fishermen may not market whitefish under two pounds (eighteen and one-half inches), lake trout under one and one-half pounds (eighteen and one-half inches), perch under nine inches, wall-eyed pike under sixteen and one-half inches, but the Wisconsin fishermen may sell these fish at any size when taken in gill nets and at minimum sizes of thirteen, twelve, seven, and thirteen inches, respectively, when taken in impounding nets. Michigan fishermen must protect the immature baby fish but their competing neighbors from Wisconsin may place these released fish on the market. Such discriminating variations in the laws of the different states and of the two countries occur also with respect to the size of mesh in the nets and with respect to other regulations.

Since nearly every commercially important species of fish migrates back and forth in the waters of a lake without reference to any state or international boundaries, it is obvious that unless all parties who have joint jurisdiction of such international or interstate populations of fish agree on proper regulations, these populations of fish cannot survive. Further, it is unfair to ask one state or nation to conserve a particular fishery while the neighboring state or nation is recklessly exploiting that same fishery.

On the basis of sixteen years of experience on the Great Lakes, during which time every effort was made to coordinate the diversified regulations of the fisheries, I am forced to the opinion that uniformity will never be established on the Great Lakes as long as the control of the fisheries is divided among the nine enforcement agencies. Under the present set-up the Great Lakes fisheries can never be managed properly. One by one each important species will continue to decline until all are exterminated commercially. We need a single agency with full powers to regulate the industry without any political interference whatsoever in order to save the commercial fisheries of the Great Lakes.

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1937 WILDERNESS EXPEDITIONS

(*Continued from page* 111)

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Expedition No. 6—August 20 to September 1—the Olympic Wilderness of Washington, Olympic National Forest, a jumbled sea of peaks and valleys surrounded on three sides by salt water, a truly wild paradise.

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Any man, woman, or child over fifteen years of age, in a normal state of health and with average riding experience, may participate in these expeditions, which are conducted by The American Forestry Association as a service for public enlightenment and enjoyment.

All expeditions are conducted on a non-commercial, non-profit basis, the cost of each trip being pro-rated among the riders. Although final costs cannot be determined for several weeks, until all field arrangements are completed, costs of the trips will range from $120 to $160, for periods of from ten to fourteen days.

Itineraries and other information will be available April 1. Those interested in riding with one or more of these expeditions are urged to write The American Forestry Association, 919 Seventeenth Street, Northwest, Washington, D. C., for this material—and for advance reservations.

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CONSERVATIONIST IN MEXICO

(*Continued from page* 120)

has heard of the new motor road to Mexico City and is hoping for one like it to his village. The tourist-promotion policy of the present government is well known. It appears then that funds alone will limit the rate at which the Sierra Madre is opened up. The policy of settling the landless in the mountain valleys will, if it persists, add further velocity to the road-building process and it will scatter livestock, as well as hunters and tourists, over the mountain country. The end result will be bad, unless Mexico does a better job that we have done in the regulation of grazing.

I sometimes wonder whether semi-arid mountains can be grazed at all without ultimate deterioration. I know of no arid region which has ever survived grazing through long periods of time, although I have seen individual ranches which seemed to hold out for shorter periods. The trouble is that where water is unevenly distributed and feed varies in quality, grazing usually means overgrazing.

With the extension of roads, recreation so-called will of course repeat the now familiar process of losing in quality as it gains in quantity of human service. Mexican citizens protest that they are going strong on National Parks and Forests. They are particularly proud of the International Park at Big Bend. They do not realize that these devices, laudable and necessary as they are, have not exempted us from the inexorable process of losing quality to gain quantity.

Mexico's experience with American hunters is an illuminating example of the limitations inherent in conservation formulae. It is no secret that until recently many visiting American hunters made pigs of themselves. Neither is it any secret that they were often aided and abetted in so doing by commercial guides. Mexico in self-defense has adopted the formula of clapping on a high license fee, and of limiting non-resident hunting to members of bonded "clubs." The theory is to call the bond for any misbehavior.

But how does the formula actually work? The bonded hunter is careful enough to stay within the law, but after such outlays he is, I think, equally careful to take all the law allows. In other words, he helps himself pretty generously and the drain on the game is probably not much less than it was in the lawless days.

I point no moral except that we seem ultimately always thrown back on individual ethics as the basis of conservation policy. It is hard to make a man, by pressure of law or money, do a thing which does not spring naturally from his own personal sense of right and wrong.

Our own Southwest was pretty badly misused before the idea of conservation was born. As a result, our own conservation program for the region has been in a sense a post-mortem cure. There are, however, two magnificent semi-arid regions in which settlement came later than the conservation idea. One is South Africa and the other is the Mexican mountains. Hence both are of world-wide interest as laboratories in which conservation can be given a full and fair test. Can they arrest and control the wasteful and predatory nature of what we call "development"? The self-defeating nature of mass-use of outdoor resources? Or are these evils inherent in industrial civilization? The next few decades will probably bring us the answer.

Perhaps a clear answer to these complex questions of policy is too much to hope for, but in any event the Sierra Madre offers us the chance to describe, and define, in actual ecological measurements, the lineaments and physiology of an unspoiled mountain landscape. What is the mechanism of a natural forest? A natural watershed? A natural deer herd? A natural turkey range? On our side of the line we have few or no natural samples left to measure. I can see here the opportunity for a great international research enterprise which will explain our own history and enlighten the joint task of profiting by its mistakes.

Financial Statement

THE AMERICAN FORESTRY ASSOCIATION

BALANCE SHEET AS OF DECEMBER 31, 1936

ASSETS		LIABILITIES AND CAPITAL		
Cash	$ 10,481.54	Accounts Payable		$ 3,365.15
General Fund Investments	9,100.00	Reserves:		
Accounts Receivable	3,564.63	Prepaid Memberships	$23,275.26	
Accrued Interest Receivable	2,299.69	Nut Tree Project	427.97	23,703.23
Inventories	3,742.34			
Deferred Charges	1,930.74	Surplus		290,145.53
Special Revolving Fund	10,000.00			
Endowment Fund (Including Real Estate)	272,432.41			
Furniture and Fixtures	3,662.56			
TOTAL	$317,213.91	TOTAL		$317,213.91

INCOME AND EXPENSE ACCOUNT FOR YEAR ENDED DECEMBER 31, 1936

EXPENSES		INCOME	
General Administration	$24,439.08	Membership Dues	$52,422.14
American Forests Magazine	33,027.51	Advertising	14,515.42
Membership Department	13,412.45	Interest	7,297.50
Forester's Office	8,428.71	Donations	742.75
Educational Publicity	5,163.77	Forester's Office	2,972.20
Conservation Magazine	1,015.71	Miscellaneous	3,342.55
		Sale of Publications	1,998.55
		Operating Deficit	2,196.12
TOTAL	$85,487.23	TOTAL	$85,487.23

FLOOD CONTROL

(*Continued from page* 108)

families and destruction to property. With no control over the amount of rain, or when or where it may fall, man cannot regulate wet and dry seasons or eliminate floods. But through conservation—by protecting soil and vegetative cover as well as by building dams, revetments, and levees—he can reduce the strength and height of floods, the volume and velocity of run-off from the land, and the human misery and property damage which floods and erosion bring.

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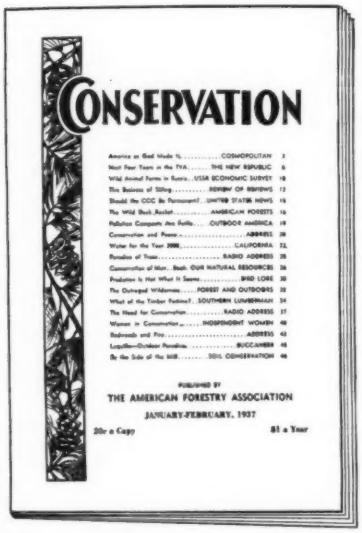

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This is no over-night task, and it is impossible to state in advance or in exact percentage terms just *how* effective it will be. But we do know that it is necessary, even if it takes off only the top few inches from the flood crest, for that few inches may spell the difference between high water and a major flood disaster.

The 74th Congress passed what is known as the Omnibus Flood Control Bill, which was approved on June 22, 1936. This Act establishes a new national policy in flood control. It recognizes biological control as coordinate with engineering control, a principle that had already been adopted in practically all other countries. Under the new policy, federal investigations and improvements of rivers for flood control are under jurisdiction of the War Department, but for the first time provision is made for adequate federal investigations by the Department of Agriculture of watersheds, and for application of measures for retarding run-off and waterflow and preventing soil erosion on watersheds. Further cooperation between Army engineers and Agricultural experts in surveys, and in application of control measures when necessary, is assured through an Executive Order which also makes specific provision for coordination of flood control programs which may be submitted to the Congress.

In cooperation with Army engineers, the Department of Agriculture is now preparing to make examinations of 222 watersheds. These preliminary examinations will furnish the flood history of watershed areas, data on present land use, type of land ownership, size of farms, and average value and annual income, a record of the damages caused by flood and erosion, certain hydrologic information, possible remedial measures and their potential benefits. They will form bases for recommendations for the treatment of specific watersheds, and where justified, these examinations will be followed by detailed surveys on the basis of which reports embodying such specific flood control programs as may be justified can be submitted to Congress for its information in determining how far it will go in adopting flood control programs for watersheds.

Within the Department of Agriculture, all flood activities are cleared through the Flood Control Policy Committee comprised of Milton S. Eisenhower, from the Secretary's office, as Chairman, with Dr. H. H. Bennett of the Soil Conservation Service, Dr. Albert G. Black of the Bureau of Agricultural Economics, and the writer for the Forest Service. To facilitate the work of this Committee in developing policies and programs, and to provide for Departmental correlation, a Flood Control Coordinating Committee has also been set up, with liaison representatives in each one of the Agricultural Bureaus. This Committee and the liaison representatives have been found necessary because practically every Bureau in the Department, including for example, the Agricultural Adjustment Administration in relation to crop production, and the Resettlement Administration in matters pertaining to its activities, must of necessity participate in the successful solution of our flood problem.

Under the new policy, conservation—planned use of land, and management of its forest, grass and other vegetative cover for the protection of human and property values—is at last to take its proper place in the national job of flood and erosion prevention and control. And in this forestry, as a part of agriculture, must of necessity play an important role.

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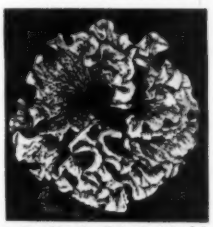
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WHO'S WHO
Among the Authors in this Issue

F. A. SILCOX (*A New National Policy in Flood Control*) is Chief Forester of the United States Forest Service. Born in Columbus, Georgia, he was educated at the College of Charleston, taking his master's degree in forestry at Yale in 1905. He entered the Forest Service that year and went up the line from ranger to district forester of the Northern Rocky Mountain Region in 1917. After the World War he was engaged in labor and industrial relations work until his appointment as Chief Forester in 1933. Speaking with a seasoned knowledge of national needs, Mr. Silcox in this article points to the appalling story of loss told by the flood situation of today. Brushing in the highlights of disastrous flood conditions of the past—adding to the picture the record of flood increase rather than decrease in our great river valleys, Mr. Silcox says, "What, then, of the future?" The hopeful note, he says, lies in national legislation, newly enacted, which establishes a policy of possible flood control through cooperative surveys by experts of the War and Agricultural Departments and opens the door to further direct action by Congress. The agricultural phases will at last be given their proper place in the national job of flood and erosion control—and forestry, Mr. Silcox says, must of necessity play an important role.

F. A. Silcox

JOHN VAN OOSTEN (*The Doom of the Great Lakes Fisheries*) is a native of Michigan, of Dutch descent. He received his education at Calvin College and the University of Michigan, where he taught for a while in the department of zoology before entering the service of the Federal Government in the Bureau of Fisheries in 1921, where he is now in charge of that Bureau's scientific investigations of the commercial fisheries of the Great Lakes Area. Having made a special study of the life history of certain of the Great Lakes fish, and later of the practical and controversial problems confronting the commercial fishermen, he is highly qualified to sound the warning contained in his article foretelling the doom of this great industry.

John Van Oosten

W. C. MCCORMICK (*Where Are We in Forest Education?*) is Assistant State Forester of North Carolina, at Raleigh, in charge of the fire protection work in that State. "Mac" has long been a leader in fire protection and in education in forestry, always advocating vigorously the application of the most practical methods in both fields.

ALDO LEOPOLD (*Conservationist in Mexico*) is an outstanding figure in the conservation field. A graduate of Yale and an old "Service" man, he is distinguished as a forester and wildlife specialist. Believing firmly in the possibility of sustained game crops, Mr. Leopold resigned as Associate Director of the Forest Products Laboratory in 1928 to make a survey of America's game resources for the Sporting Arms and Ammunition Manufacturers' Institute, later serving with that organization in a consulting capacity. He is now Professor of Game Management at the University of Wisconsin and has done much to mould public opinion and direct thought to the newer modern methods in wildlife protection and management, to the end that America's game shall be a continuing resource.

Aldo Leopold

MILDRED B. WILLIAMS (*poem—The Western Range*) is Librarian at the United States Forest Service. She expresses in poignant beauty a tragedy of the range.

ETHEL ROMIG FULLER (*poem "March"*) lives in Portland, Oregon, and is Verse Editor of *The Oregonian*.

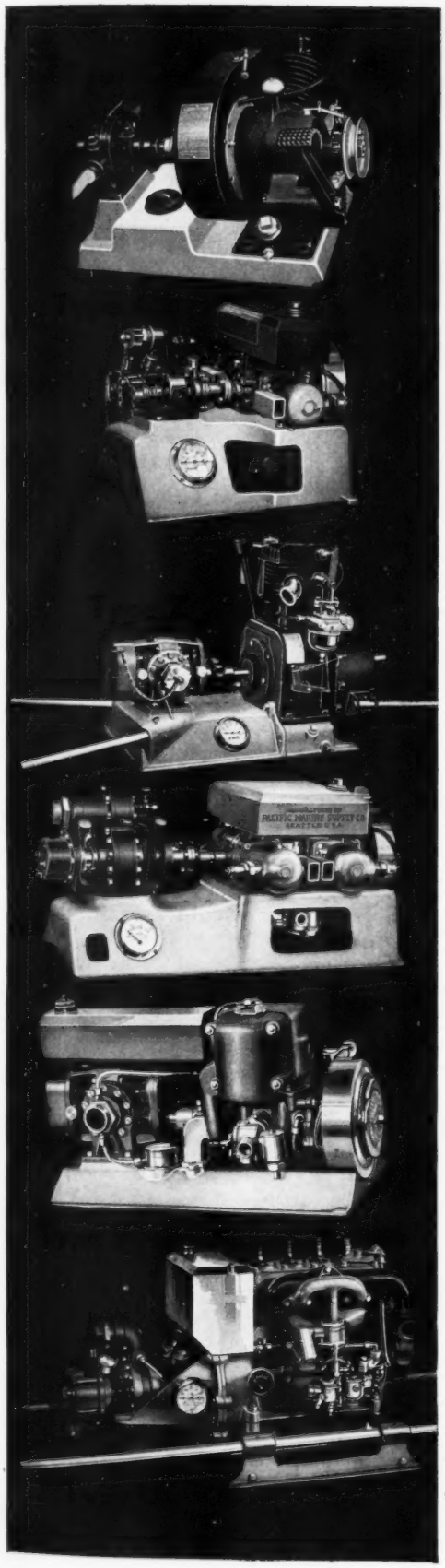
C. S. MARTIN (*Pine Beetle Logging Company*) is Forest Engineer for the Western Pine Association, covering the pine regions of eleven Western states, with headquarters at Portland, Oregon. A graduate of De Pauw, Mr. Martin took his master's degree in forestry at Yale in 1907. After an intensive experience in the woods and lumber camps of the Northwest, he became Consulting Forest Engineer to the Government of India, examining and reporting on large bodies of undeveloped timber in India and the Andaman Islands. Later, he traveled extensively through Assam and the Malay States, Egypt, Soudan and Mesopotamia, returning to this country in 1930.

C. S. Martin

OVID BUTLER (*Conservation at the Forks*) is Executive Secretary of The American Forestry Association and Editor of AMERICAN FORESTS magazine.

GEORGE HARRIS COLLINGWOOD (*Western Red Cedar*) is Forester for The American Forestry Association.

THE COVER. "*Sky Drama*"—this beautiful study was made in New Jersey by T. M. Wurts, of East Orange. The original was exhibited in the national photographic competition of The American Forestry Association for "Beautiful Photographs of Trees in America."



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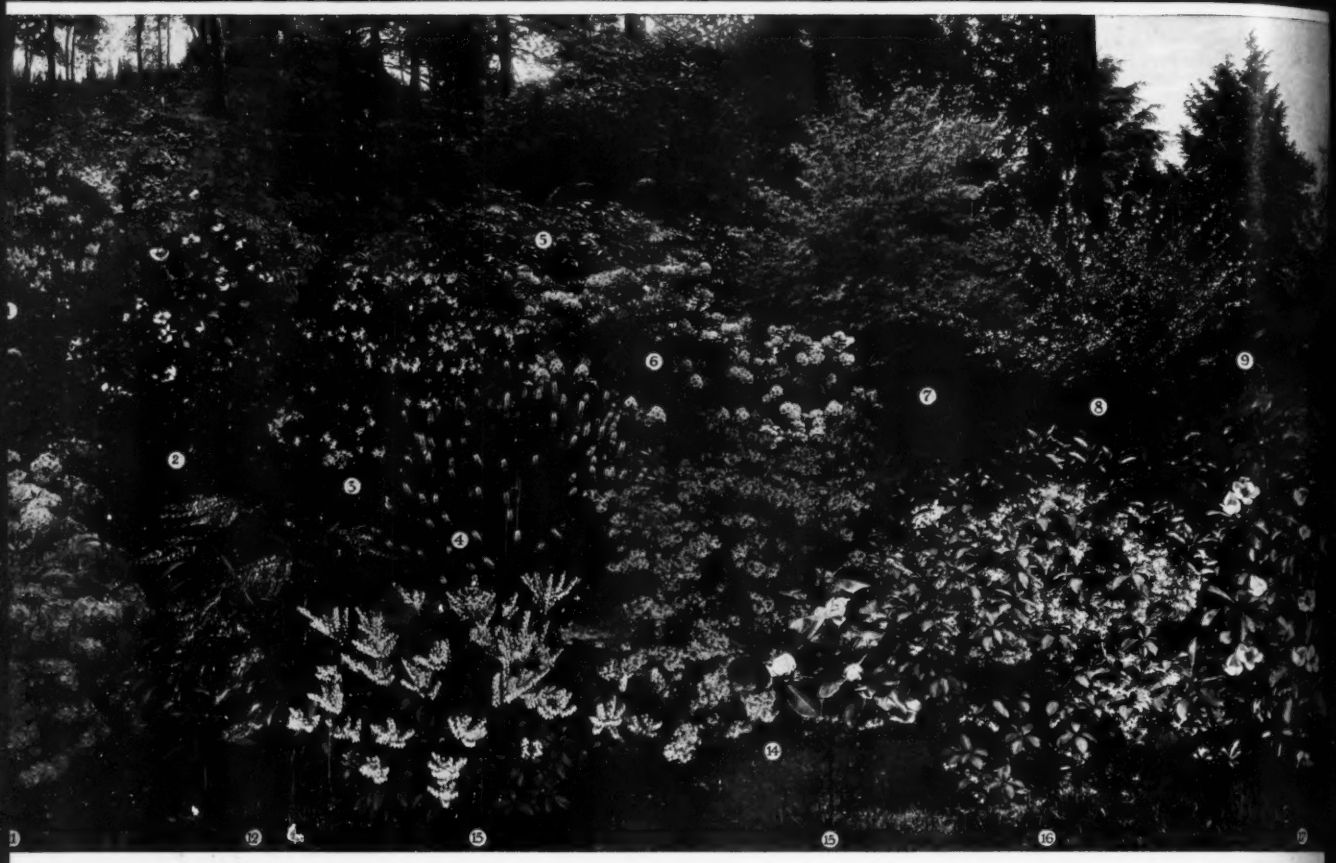

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1. Rhododendron Maximum
Evergreen, white; July; 12-ft. (*Photo of old plant.*) 18-inch (balled) $2.50 (Each); 12-inch $3 (10).

2. Stewartia pentagyna
White cups; July; 8-ft. (*Photo of old plant.*) 2-ft. $2.00 (Each); 1-yr., small, $2.25 (10).

3. Azalea Viscosa
Fragrant, white; June; 9-ft. (*Photo of 5-ft. plant.*) 3-ft. (balled) $2.75 (Each); 12-inch $3.50 (10).

4. Clethra (Summersweet)
Spicy, white; July; 8-ft. (*Photo 5-ft. plant.*) 2-ft. $.75 (Each); 18-inch $2.50 (10).

5. Leucothoe catesbaei
Evergreen, fragrant, white; May; 4-ft. (*Photo of mass planting.*) 1½-ft. $1.00 (Each); 12-inch $4.50 (10).

6. Rhododendron Catawba
Evergreen, purple; June; 9-ft. (*Photo of old plant.*) 1½-ft. (balled) $3.25 (Each); 12-inch $4.50 (10).

7. White-flowering Dogwood
Showy, white; May; 25-ft. (*Photo of 15-ft. plant.*) 3-ft. $1.50 (Each); 6-inch $1.75 (10).

8. Red Bud (Cercis)
Pink; May; 20-ft. (*Photo of 10-ft. tree.*) 4-ft. $1.25 (Each); 2-ft. $3.50 (10).

9. Hemlock (Tsuga canad.)
Evergreen, noble, 80-ft. tree. (*Photo of two old specimens.*) 2-ft. (balled) $1.75 (Each); 12-inch (small ball) $4.50 (10).

10. Holly (Ilex opaca)
Evergreen; red winter berries; 30-ft. (*Photo of 8-ft. tree.*) 1½-ft. (balled) $2.00 (Each); 3-inch pots $5.50 (10).

11. Mountain Laurel (Kalmia)
Evergreen; pink; June; 8-ft. (*Photo of 4-ft. clump.*) 2-ft. (balled) $2.00 (Each); 12-inch (small ball) $3.00 (10).

12. Sorrel Tree (Oxydendron)
White in August; 30-ft. (*Photo of bushy 5-ft. plant.*) 3-ft. $2.25 (Each); 1½-ft. $2.50 (10).

13. Pieris floribunda
Evergreen; white; early May; dwarf; spreading. 1½-ft. (balled) $3.25 (Each); 10-inch $6.50 (10).

14. Azalea Nudiflora
Pink; May; 6-ft. (*Photo of old, lone bush.*) 1-ft. (balled) $1.50 (Each); 12-inch (light) $1.50 (10).

15. Magnolia glauca
Evergreen; fragrant; white; June-Aug.; 15-ft. (*Photo of young plant, 2-ft.*) 2-ft. $1.25 (Each); 15-inch $3.75 (10).

16. White Fringe (Chionanthus)
White; May; 20-ft. (*Photo of 6-ft. clump.*) 4-ft. $2.00 (Each); 18-inch $5.00 (10).

17. Franklinia (Gordonia)
Rare; white and gold; August to October; blooms young; 30-ft. (*Photo of 7-ft. clump.*) 4-ft. (balled) $4.00 (Each); 10-inch $9 (10).